



اينوك
enoc

ENOC LUBRICANTS PRODUCT INFORMATION GUIDE

Prepared by:
ENOC Lubricants Marketing. P.O. Box 6442, Dubai, UAE.

* The specifications for a product apply for a particular viscosity grade. For more details contact ENOC Technical Support.
* Information might change without notice

5th Edition - 2022

A Message from the CEO

We see an opportunity for us to continue evolving our product offering. Our objectives are two fold: To be recognized globally as a reliable, responsible and innovative energy partner of choice, and to strengthen our position as the leading lubricants brand in the Middle East.

Much lies before us, however, having achieved so much since ENOC Lubricants was established in 1998, we are confident that we will continue to build upon these successes.

Understanding the dynamics of our target markets is crucial for us to be able to meet customer demands and have a strong and established presence in these markets. We will work collaboratively with our rapidly developing distribution network, adopting a mutual partnership approach, while ensuring our products consistently conform to the latest international lubricant specifications.

Our customer base is steadily growing worldwide, and we are engaging the trust of international trade and global consumers. Through keen brand management, we aim to live up to and maintain this trust by delivering reliability and quality of both products and services.

H.E Saif Humaid Al Falasi
Group Chief Executive Officer (GCEO)
ENOC Group

ENOC Lubricants

ENOC Lubricants has evolved from a regional industry player into a brand now recognized in more than 60 countries, including the Middle East, Africa, Indian Subcontinent, South America, CIS and Asia. Recognized as a leading brand and delivering world-class premium quality lubricants, ENOC Lubricants has now become the preferred lubricant of choice by motorists, manufacturers, and industrial users.

ENOC Lubricants—a specialized lubricants division of ENOC Marketing LLC has developed its own quality range of branded automotive and industrial lubricants. These are marketed, via a distribution network, in more than 60 countries across the Middle East, Asia and Africa.

ENOC Lubricants' philosophy is to maintain the highest quality standards, where we adhere to that promise and ensure that it is applied across our value chain, starting with production, up to delivering our products to the end user. Our products meet the latest international specification standards including API and ACEA, and are approved against OEM specifications. These products are supplied on time and in best in class packaging. Our technical staff always offer our customers expert advice, offering oil analysis services, in addition to investigating equipment conditions and advising on required maintenance support.

ENOC's range of motor engine oils is designed to meet the varying needs of all motorists' from the latest turbocharged engines to light trucks. The high-tech gasoline oils exceed the highest performance specifications and provide longevity, reliability, and maximum protection.

ENOC Protec X-treme, the top tier synthetic oil, and ENOC Protec Green, low SAPS environment- friendly oil, have both received approvals from the world's most prominent engine manufacturers. ENOC Protec range for gasoline engine oils is designed to meet a diverse range of specifications, viscosity, and approvals.

ENOC's diesel engine oils are designed for every kind of diesel engine application; from modern, super high performance, low emission engines, and major international engine builders to monograde oils for older pick-ups and heavy-duty vehicles. ENOC Vulcan SLD, ENOC Vulcan Green, ENOC Vulcan 990X are top tier engine oils that are designed to meet the latest specifications; delivering best in class drain intervals and equipment durability.

ENOC also has a strong mid-tier portfolio with cutting edge products like ENOC Vulcan 800X 15W-40, ENOC Vulcan 770X Super 15W-40 that meet most of the standard performance requirements of globally prominent OEMs. Backed by the flagship ELAPTech Oil Analysis program, ENOC Vulcan range has provided significant improvements in maintenance cost reduction and machine reliability.

The Product Information Guide is the primary ENOC reference for all lubricants. It is a compilation of Product Data Sheets. It is important to note that the entries in the Guide will become outdated over time as additional approvals are obtained, industry requirements change, or formulation modifications are made. For this reason, you should use the Product Information Guide as a reference and cross check the latest issue of the respective product Data Sheet for the most up-to-date information for a particular product. Depending on available resources, the Product Information Guide is scheduled for revision and redistribution approximately every two to three years.

The Health, Safety and Environment (HSE) statements in the Product Data Sheets do not appear in each entry in the Guide. Instead, they are covered by a separate HSE entry in the “Appendices” section of the Guide.

The Guide is divided into application sections by selecting the easy to use tab on the side of the Guide.

There is an “Applications” index. Checking here will lead to the product or products utilized for a particular application, e.g., checking “Automotive, Differentials” will reveal the various products used in the lubrication of vehicle differentials, manual gearboxes, etc.

The Guide is divided into two main fluid groups for Automotive and Industrial applications. The automotive products have been subdivided into specific applications: Engine oils, Gear oils, Automotive transmission fluids, Motorcycle engines oils and Specialty oils. The industrial product range is subdivided to cover 11 different lubricant applications and greases.

The Product Information Guide is intended for use mainly by ENOC staff and it can be circulated to major customers.

The final section of the Guide consists of “Appendices” of useful information on subjects such as industry performance classification (e.g., API, ACEA), viscosity classification systems (e.g., SAE, ISO, etc.), measurement conversion charts, a glossary of terms and a list of abbreviations commonly used in the petroleum industry.



ENOC Group at a Glance

ENOC Group (Emirates National Oil Company) is a leading integrated international oil and gas player operating across the energy sector value chain. As a wholly owned entity of the Government of Dubai, and integral to the Emirate's success, ENOC owns and operates assets in the fields of exploration & production, supply & operations, terminals, fuel retail, aviation fuel and petroleum products for commercial & industrial use. The Group's general business operations includes automotive services, non-fuel F&B retail and fabrication services. Servicing thousands of customers in over 60 markets, the Group employs a multi-national workforce of over 11,000 employees. It is deploying its world-class customer service, the latest innovations and technologies, and best practices to empower the UAE's social and economic development.



ENOC Group Environment, Health & Safety Policy

Emirates National Oil Company is committed to protect the safety and wellbeing of its employees, business partners, customers and the public, in so far as they come in contact with the company or its products and the environment; as far as reasonably practicable. To achieve this ENOC shall conduct its operations in a safe, secure, environmentally sound, and responsible manner, while striving for business and operational excellence with best-in-class HSEQ standards for stakeholder satisfaction, prosperity and sustainable growth.

To accomplish this, we shall:

- Implement a comprehensive and integrated HSEQ management system supporting the organizational strategic direction.
- Pro-actively manage our Health, Safety, Environment & Quality risk to enhance customer satisfaction and comply with all applicable laws, regulations, and policies on HSEQ matters. Clearly identify, mitigate, and manage the risks throughout the organization by controlling design, construction, operation, and maintenance of assets supported by appropriate risk management methodologies and tools.
- Protect the environment, prevent pollution, minimize hazardous waste, effluents, and emissions using best available technology and preserve biological diversity for sustainable development.
- Ensure emergency response and crisis management plans are in place to manage our HSEQ risks. Develop and implement a competency framework for all HSEQ critical roles ensuring accountability.
- Consistently provide quality products and services which meet customer and applicable statutory and regulatory requirements.
- Promote the use of process improvement methodologies in enhancing the effectiveness of the management system.
- Consult and engage with employees on the HSEQ Management System.
- Promote an organizational culture that encourages safe behavior and empowers our workforce to intervene or stop any unsafe act or condition.
- Prevent incidents by visible and committed leadership and by managing process safety and asset integrity.
- Ensure our business partners comply with ENOC HSEQ requirements.
- Evaluate the effectiveness of our HSEQ Management System through periodic audits and assurance reviews.

This documented policy shall be communicated to all employees and business partners and made available to all stakeholders.

This policy shall be reviewed periodically to ensure its continued suitability and foster continual improvement.

Saif Humaid Al Falasi
Group Chief Executive Officer

Contents

10	>	Passenger Car Engine Oils
26	>	Heavy Duty Diesel Engine Oils
45	>	Automotive Ancillary Oils
65	>	Motor Cycle Oils
74	>	Greases
84	>	Industrial Oils
103	>	Power Generation Oils
108	>	Marine Oils
115	>	Specialties
121	>	Appendices



Index



ENOC PROTEC GREEN C5	11	ENOC VULCAN 660X	41
ENOC PROTEC GREEN VWP	11	ENOC VULCAN 550X	41
ENOC PROTEC GREEN	12	ENOC VULCAN 330 SAE 25W-50	42
ENOC PROTEC FLEX ENERGY SAE 0W-16	12	ENOC VULCAN 330	42
ENOC PROTEC FLEX ENERGY SAE 0W-20	13	ENOC VULCAN SUPER DUTY 40	43
ENOC PROTEC FLEX ENERGY SP 5W-30	13	ENOC VULCAN SUPER DUTY CF 50	43
ENOC PROTEC FLEX ENERGY SAE 5W-40	14	ENOC VULCAN SUPER DUTY	44
ENOC PROTEC FLEX ENERGY	14	ENOC VULCAN SVI 70	44
ENOC PROTEC X-TREME	15	ENOC ACTIVE SYN OEM	46
ENOC PROTEC X-TREME	15	ENOC ACTIVE SYN VVM	47
ENOC KUWA SPEED 4700 5W-30	16	ENOC ACTIVE CVT	47
ENOC KUWA SUPREME 9130 5W-30	16	ENOC ACTIVE DCF	48
ENOC PROTEC GREEN C3	17	ENOC ACTIVE PREMIUM	48
ENOC PROTEC ULTRA C3	17	ENOC ACTIVE SUPER	49
ENOC PROTEC ULTRA SAE 10W-30	18	ENOC ACTIVE CTF	49
ENOC PROTEC ULTRA SAE 10W-40	18	ENOC ACTIVE HEAVY DUTY	50
ENOC PROTEC PREMIUM SAE 5W-30	19	ENOC TRACTOR UTF	50
PROTEC PREMIUM SAE 10W-30	19	ENOC TRACTOR STO	51
ENOC PROTEC PREMIUM	20	ENOC ZENON ULTRA PLUS SYN SAE 75W-90	51
ENOC PROTEC PREMIUM CNG	20	ENOC ZENON ULTRA PLUS SYN SAE 75W-140	52
ENOC PROTEC SUPER+ 20W-50	21	ENOC ZENON ULTRA PLUS LSD	52
PROTEC SUPER+ SAE 20W-50	21	ENOC ZENON ULTRA PLUS	53
ENOC PROTEC SPEED	22	ENOC ZENON ULTRA	53
ENOC PROTEC SUPER SG	22	ENOC ZENON PREMIUM PLUS V SAE 75W-90	54
ENOC PROTEC SUPER SF 20W-50	23	ENOC ZENON UNIVERSAL	54
ENOC PROTEC SPECIAL	23	ENOC ZENON PREMIUM PLUS SYN	55
ENOC PROTEC SPECIAL	24	ENOC ZENON PREMIUM PLUS SYN SAE 75W-85	55
ENOC PROTEC HD SF	25	ENOC ZENON PREMIUM PLUS SYN 75W-90	56
ENOC PROTEC HD SE	25	ENOC ZENON PREMIUM PLUS	56
ENOC VULCAN 999X ENERGY 10W-30	27	ENOC ZENON PREMIUM	57
ENOC VULCAN 990X EXLD 10W-40	28	ENOC ZENON SUPER	57
ENOC VULCAN 990X EXLD 15W-40	29	ENOC ZENON	58
ENOC VULCAN 755X SAE 10W-40	29	ENOC EN-COOL EXTRA COOLANT	58
ENOC VULCAN GREEN 10W-40	30	ENOC EN-COOL OAT EXTRA LONG-LIFE COOLANT	59
ENOC VULCAN 880X 15W-40	30	ENOC EN-COOL HEAVYDUTY NM COOLANT	60
ENOC VULCAN 880X 20W-50	31	ENOC EN X-TREME COOL EC50	60
ENOC VULCAN 770 SLD 10W-40	31	ENOC EN-COOL COMFORT COOL EC33	61
ENOC VULCAN 760X SYNTECH 10W-40	32	ENOC EN-CORROSION INHIBITOR PRE-MIXED	61
ENOC VULCAN 800X 10W-40	33	ENOC FUEL INJECTOR CLEANER – DIESEL	62
ENOC VULCAN 800X SAE 15W-40	34	ENOC FUEL INJECTOR CLEANER – PETROL	62
ENOC VULCAN 800X SAE 20W-50	35	ENOC EN-FLUSH OIL	63
ENOC VULCAN 770X SUPER 15W-40	35	ENOC ULTRA BRAKE FLUID	63
ENOC VULCAN 770X SUPER 20W-50	36	ENOC SUPER BRAKE FLUID DOT 3	64
ENOC VULCAN 770X 10W-30	36	ENOC SUPER BLUE BRAKE & CLUTCH FLUID	64
ENOC VULCAN 770X 15W-40	37	ENOC PROTEC 2T PREMIUM LS	66
ENOC VULCAN 770X 20W-50	37	ENOC PROTEC 2T SUPER OUTBOARD	66
ENOC VULCAN 765X	38	ENOC PROTEC 2T	68
ENOC VULCAN 700X SUPER 15W-40	38	PROTEC 4T XTREME	69
ENOC VULCAN 700X 15W-40	39	ENOC PROTEC 4T ULTRA PLUS 10W-40	69
ENOC VULCAN 700X 20W-50	39	ENOC PROTEC 4T SUPER POWER 20W-50 SM	70
ENOC VULCAN 700X ULTRA	40	ENOC PROTEC 4T PREMIUM	70
ENOC VULCAN 705X 15W-40	40		

Index



ENOC PROTEC 4T SCOOTER 10W-40	71	ENOC ARC TRANSFORMER OIL (INHIBITED)	100
ENOC PROTEC 4T FAST 20W-40	71	ENOC ARC TRANSFORMER OIL (SILICONE)	100
ENOC PROTEC 4T SUPER 10W-40	72	ENOC ARC TRANSFORMER OIL	101
ENOC PROTEC 4T SUPER SG	72	ENOC LAMINA OIL	101
ENOC PROTEC 4T MAX	73	ENOC LAMINA SPECIAL OIL	102
ENOC PROTEC 4T	73	ENOC LAMINA SPECIAL (AB) OIL	102
ENOC VERRON TAC	75	ENOC STRATA	104
ENOC VERRON LX	75	ENOC STRATA MSD	104
ENOC VERRON MOLY EP	76	ENOC STRATA MSDO	105
ENOC VERRON EP	76	ENOC KHAURA AF OILS	105
ENOC VERRON EP PLUS	77	ENOC KHAURA LA SAE 40	106
ENOC VERRON CS	77	ENOC PEGASO 413 OIL	106
ENOC VERRON MP	78	ENOC PEGASO 417 OIL	107
ENOC VERRON MWR	78	ENOC PEGASO 420 OIL	107
ENOC VERRON EM	79	ENOC STRATA CYL 540 LS	109
ENOC VERRON L-MP 2	79	ENOC STRATA CYL 540	110
ENOC KRASOUS BMS	80	ENOC STRATA CYL 570	110
ENOC KRASOUS LC EP 2	80	ENOC STRATA CYL 5100	111
ENOC ARMOUREX GMO	81	ENOC STRATA CYL N570	111
ENOC ARMOUREX SM	81	ENOC STRATA LSF	112
ENOC ARMOUREX SYN CHAIN LUBRICANT NF	82	ENOC STRATA MSD	112
ENOC ARMOUREX RG	82	ENOC STRATA MSDO	113
ENOC ARMOUREX CS	83	ENOC STRATA SMO IS A SAE 30, 5-6 TBN	114
ENOC ARMOUREX FLUIDS H AND L	83	STRATA SUPER DUTY 40	114
ENOC AXIS H	85	ENOC EXERTA OILS	116
ENOC AXIS H	85	ENOC COOLCUT G SOLUBLE OIL	116
ENOC AXIS	86	ENOC SECTUS SM 700	117
ENOC AXIS L	87	ENOC DEGREASER WB	117
ENOC AXIS ZF HVI	87	ENOC MEDICINAL WHITE OIL 68	118
ENOC AXIS ZF	88	ENOC CHAINSAW CUTTERBAR SPECIAL	118
ENOC AXIS FR (HDF-U)	88	ENOC HISPIN OILS	119
ENOC VORTEX GT-2 EP	89	ENOC MACTROL AT LUBRICANTS	119
ENOC VORTEX GT-2	89	ENOC ENMOULD GBO	120
ENOC VORTEX SAT	90	ENOC AGRI SPRAY OIL	120
ENOC SPIRO H OILS	90	APPENDICES	121-125
ENOC SPIRO RS OILS	91		
ENOC SPIRO PA OILS	91		
ENOC SPIRO PG OILS	92		
ENOC SPIRO SE OILS	92		
SPIRO PGP SERIES PRODUCTS	93		
ENOC REDUCT OILS	93		
ENOC REDUCT C OILS	94		
ENOC REDUCT GMS OILS	94		
ENOC REDUCT PG OILS	95		
ENOC REDUCT SH OILS	95		
ENOC REDUCT SS OILS	96		
ENOC REDUCT OGC 190	96		
ENOC CIRCULA	97		
ENOC CIRCULA RO	97		
ENOC CRYOGEN N	98		
ENOC CRYOGEN AB	98		
ENOC CRYOGEN PE	99		
ENOC CRYOGEN NH 68	99		



Passenger Car Engine Oils

PROTEC GREEN C5

Product Description

ENOC PROTEC GREEN C5 is a fully synthetic multigrade SAE 0W-20 lubricant formulated for use in modern turbocharged, supercharged, direct injection gasoline and diesel passenger cars and light diesel trucks. PROTEC GREEN C5 has a class leading performance capability include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection. It gives long engine service performance, engine wear control, fuel efficiency, low temperature protection and exhaust emission device protection. Meets the requirements of ACEA European sequence C5 requirements for low friction, low viscosity lubricants for gasoline and light diesel passengers' engines.

Applications

- All makes of passenger cars recommended for model year 2016 & later as per OEM recommendations (not backward compatible)
- High performance normally aspirated and turbocharged engines
- Intended for use over extended drain intervals in high performance gasoline and light duty diesel engines.
- Hybrid vehicles
- Light commercial vehicles

Performance Standards

PROTEC GREEN C5 meets and exceeds the following International specifications: API & SP approved

API	SP	ILSAC	GF-6A
ACEA	C5	BMW	LL-17FE
MB-Approval	229.71	Opel	OV 0401547
Ford	WSS-M2C947-B1	Ford	WSS-M2C962-A1
JLR ST	JLR 03-5006-16		

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC GREEN C5 provides:

- Low friction formula helps improve fuel mileage.
- Prevent engine damage by providing outstanding LSPI protection.
- Excellent Piston / Rings cleanliness which increase engine and oil life.
- Enhance cams and Chain durability.
- Minimize corrosion due to stop-start driving.
- Proven technology in Hybrid vehicles.

SAE Grade*	0W-20
Density	0.8459
Kinematic Viscosity mm ² /s @ 40°C	43.1
Kinematic Viscosity mm ² /s @ 100°C	8.28
Viscosity Index	171
TBN	7.9
Flash Point, COC, °C	224
Pour Point, °C	-42
Product Code	210095

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

PROTEC GREEN VWP

Product Description

ENOC PROTEC GREEN VWP is the latest highest-performance fully synthetic engine oil formulated to provide exceptional performance capabilities in GDI turbocharged engines. PROTEC GREEN VWP has been expertly formulated with low SAPS additive chemistry to prolong the life and maintain the efficiency of engines emission systems of latest EURO 6 engines, and meets the requirements of ACEA European sequence C5 requirements for low friction, low viscosity lubricants for gasoline and light diesel passengers' engines. PROTEC GREEN VWP meets and exceeds the requirements of many leading car manufacturers standards for new modern diesel and gasoline passenger cars engines, particularly Volkswagen unique engine oil.

Applications

- For all types of modern automobile engines (newer than 2016 models not backward compatible) with the latest Diesel Particulate Filters (DPF's) and Gasoline Particulate Filters (GPF).
- Suitable for use in latest gasoline & light duty diesel engines used in VAG group cars (VW, Audi, Porsche, SEAT & Skoda) as recommended by individual OEMs
- Hybrid vehicles

Performance Standards

PROTEC GREEN VWP is suitable for use as engine oil in the following OEM and International specification requirement:

ACEA C5

Approved under VW standard 508 00 & VW standard 509 00

Porsche C 20

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC GREEN VWP provides:

- Low friction formula helps improve fuel mileage.
- Excellent Piston / Rings cleanliness which increase engine and oil life.
- Enhance oil life that enable long drains.
- Minimize corrosion due to stop-start driving.
- Proven technology in Hybrid vehicles

SAE Grade	0W-20
Colour	Green
Density	0.8471
Viscosity mm ² /s @ 100°C	8.28
Viscosity mm ² /s @ 40°C	45.2
Viscosity Index	160
Phosphorus, wt %	<0.08
Flash Point, °C	224
Pour Point, °C	-42
Product Code	210094

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC GREEN

Product Description

ENOC PROTEC GREEN is an advanced low SAPS (Sulphated Ash, Phosphorus & Sulphur) high technology 100% fully synthetic engine oil for Light vehicles with gasoline, CNG and diesel engines requiring low emission performance specification exceeding ACEA C3 and API SN. It has been developed to provide maximum protection for all passenger cars, MPVs, SUVs fitted with low emission engines and particulate filters, EGR and catalytic converters. Product imparted with friction modifier is available in SAE 5W-30 and SAE 5W-40 viscosity grade to provide maximum fuel saving and to meet long drain requirements. Compatible to all vehicles running on lead free gasoline.

Applications

- All makes of light duty vehicles with natural and Turbo charged engines – Passenger cars, MPVs, SUVs using gasoline, CNG and diesel
- Vehicles fitted with state-of-the art exhaust gas treatment system such as particulate filters, EGR and catalytic
- Converters to meet low emission requirements
- Compatible with other engine oils but recommended not to mix in order to enhance the life of exhaust gas treatment gadgets
- Compatible with seals and gaskets

Performance Standards

PROTEC GREEN meets and exceeds the following International specifications:

API	SN	Renault	RN 0700/0710
ACEA	C3	MB	Approval 229.51
VW	502.00/505.01	BMW	Longlife Oil-04
*GM	dexos 2 Approval	Porsche Cars	A40 oil category
*meet SAE 5W-40			



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC GREEN provides:

- Protects and enhances Exhaust gas treatment gadgets such as particulate filters, Catalytic converters due to low ash technology, thus suitable for low emission engines
- Increases the catalyst life because of low Phosphorus level
- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improves engine life
- Outstanding fuel economy and increase oil drain interval and reduce oil top-up.
- Excellent protection against wear
- Resistance to nitration and oxidation associated with gas fuels and Excellent low temperature easy starting, so termed as all weather oil

SAE Grade	5W-40	5W-30
Density at 15°C, kg/L, ASTM D4052	0.8453	0.8413
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	86.63	66.0
mm ² /s at 100°C	14.34	11.5
Pour Point, °C, ASTM D97	-42	-39
Flash Point, °C (COC), ASTM D92	230	220
CCS Viscosity, mPa.s, ASTM D 5293	6120 @-30°C	6310 @-30°C
Product code	210031	210030

Technical Data*

ENOC PROTEC FLEX ENERGY

Product Description

ENOC PROTEC FLEX ENERGY SAE 0W-16 is an advanced technology petrol engine oil, one of the first to be introduced that is formulated from fully synthetic base oils with the latest technology additives that meets and exceeds API SP and ILSAC GF-6B. It is specifically designed with advanced "Triple Shield" formula that provides three levels of protection:

- Essential protection: Class leading engine sludge, engine wear & oil thickening protection
- Tailored protection: Class leading Performance capabilities include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection.
- Fuel economy and Fuel economy retention

Applications

PROTEC FLEX ENERGY SAE 0W-16 is recommended for all modern American/Japanese/Korean/European/Chinese petrol vehicles with multi fuel use only where OEM recommends SAE 0W-16 viscosity

Performance Standards

PROTEC FLEX ENERGY SAE 0W-16 meets and exceeds the following OEM and International Specifications:

API	SP approved
ILSAC	GF-6B

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

ENOC PROTEC FLEX ENERGY SAE 0W-16 provides:

- Low friction formula helps improve fuel mileage
- Prevents engine damage by providing outstanding LSPI protection
- Excellent Piston / Rings cleanliness which increase engine and oil life
- Enhance cams and Chain durability
- Minimize corrosion due to stop-start driving
- Proven technology in Hybrid vehicles
- Excellent protection for high performance engines
- Enhances After Treatment Devices (ATD) protection
- Control high temperature oxidation, deposits and prevent sludge and other deposits

SAE Grade	0W- 16
Density at 15°C, kg/L, ASTM D4052	0.8437
Kinematic Viscosity, mm ² /s ASTM D 445	
mm ² /s @ 40°C	36.5
mm ² /s @ 100°C	7.2
Viscosity Index, ASTM D 2270	165
Flash Point, COC, 0C, ASTM D 92	220
Pour Point, °C, ASTM D 97	-45
CCS Viscosity, mPa.s, ASTM D 5293	4500 at -35°C
Sulphated Ash, wt.%, ASTM D 874	0.87
Product Code	210089

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC FLEX ENERGY

Product Description

PROTEC FLEX ENERGY SAE 0W-20 is an advanced technology petrol engine oil, one of the first to be introduced formulated from fully synthetic base oils with the latest technology additives that meets and exceeds API SP and ILSAC GF-6A. It is specifically designed with advanced "Triple Shield" formula that provides three levels of protection:

- Essential protection: Class leading engine sludge, engine wear & oil thickening protection
- Tailored protection: Class leading Performance capabilities include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection.
- Fuel economy and Fuel economy retention

PROTEC FLEX ENERGY SAE 0W-20 is formally approved for API SP, ILSAC GF-6A, and GM dexos1 Generation 3 specifications. Compatible with all vehicles running on lead free gasoline, ethanol, LPG and CNG.

Applications

PROTEC FLEX ENERGY SAE 0W-20 is recommended for all modern American/Japanese/Korean/European/Chinese petrol vehicles with multi fuel use.

Performance Standards

PROTEC FLEX ENERGY SAE 0W-20 meets and exceeds the following International specifications:

API	SP approved
ILSAC	GF-6A
GM dexos1	Gen 3 approved

Benefits

PROTEC FLEX ENERGY SAE 0W-20 provides:

- Low friction formula helps improve fuel mileage.
- Prevent engine damage by providing outstanding LSPI protection
- Excellent Piston / Rings cleanliness which increase engine and oil life.
- Enhance cams and Chain durability
- Minimize corrosion due to stop-start driving.
- Proven technology in Hybrid vehicles
- Excellent protection for high performance engines.
- Enhances After Treatment Devices (ATD) protection.
- Control high temperature oxidation, deposits and prevent sludge and other deposits

SAE Grade	0W- 20
Kinematic Viscosity mm ² /s @ 40°C	42.9
mm ² /s @100°C	8.2
Viscosity Index	170
Flash Point, COC, °C	220
Pour Point, °C	-45
Sulphated Ash, wt %	0.82
Product Code	210103

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC FLEX ENERGY

Product Description

PROTEC FLEX ENERGY SP 5W-30 is the highest performance product, one of the first to be introduced in MENA region formulated from fully synthetic base oils with the latest technology additives that meets and exceeds API SP and ILSAC GF-6A. It is specifically designed with advanced "Triple Shield" formula that provides three levels of protection:

- Essential protection: Class leading engine sludge, engine wear & oil thickening protection
- Tailored protection: Class leading Performance capabilities include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection
- Fuel economy and Fuel economy retention

PROTEC FLEX ENERGY SP 5W-30 is formally approved for API SP, ILSAC GF-6A and GM dexos1 Generation 2 specifications. Compatible with all vehicles running on lead free gasoline, ethanol, LPG and CNG

Applications

- All new makes of passenger cars
- High performance cars normally aspirated and turbocharged gasoline engines
- Tailormade for 4X4 SUVs
- Latest model Japanese, American and European cars

PROTEC FLEX ENERGY SP 5W-30 is recommended for all modern American/Japanese/Korean/European/Chinese with multi fuel use.

Performance Standards

PROTEC FLEX ENERGY SP 5W-30 meets and exceeds the following OEM and International Specifications:

API	SP approved
ILSAC	GF-6A
GM dexos1	Gen 3 approved

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC FLEX ENERGY SP 5W-30 provides:

- Low friction formula helps improve fuel mileage
- Prevents engine damage by providing outstanding LSPI protection
- Excellent Piston/Rings cleanliness which increase engine and oil life
- Enhances cams and Chain durability
- Minimize corrosion due to stop-start driving
- Excellent protection for high performance engines
- Enhances After Treatment Devices (ATD) protection
- Control high temperature oxidation, deposits and prevent sludge and other deposits

SAE Grade	5W- 30
Kinematic Viscosity mm ² /s @ 40°C	59.5
mm ² /s @100°C	10.5
Viscosity Index	162
Flash Point, COC, °C	220
Pour Point, °C	-42
Sulphated Ash, wt %	0.79
Product Code	210101

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC FLEX ENERGY

Product Description

ENOC PROTEC FLEX ENERGY SAE 5W-40 is a high technology fully synthetic lubricant for the latest model passenger cars requiring performance specification API SP developed to provide maximum protection for all passenger cars, including high performance cars and cars with low emission engines having Catalytic converters fitted to the vehicles. It is available as a SAE 5W-40 Viscosity grade to provide enduring protection to the engine resulting in smooth driving comfort. Compatible for all cars running on lead free gasoline.

Applications

- All new makes of passenger cars
- High performance cars with normally aspirated and turbocharged gasoline engines
- Tailormade for 4x4 SUVs
- Latest model Japanese, American and European cars

Performance Standards

PROTEC FLEX ENERGY SAE 5W-40 meets and exceeds the following International specifications:

API SP

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

ENOC PROTEC FLEX ENERGY SAE 5W-40 provides:

- Maximize engine power and prevent engine power loss while maintaining cleanliness
- Low Speed Pre-Ignition (LSPI) protection in turbocharged direct injection engines
- Proven performance in Hybrid engines
- Formulated specially for high performance 4X4 SUVs operating in harsh driving conditions

SAE Grade	5W-40
Density at 15°C, kg/L, ASTM D4052	0.8478
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	85.4
mm ² /s at 100°C	14.06
Viscosity Index, ASTM D 2270	170
Pour Point, °C, ASTM D97	-39
Flash Point, °C, ASTM D92	230
CCS Viscosity, mPa.s, ASTM D 5293	6200 @ -30°C
Sulphated Ash, wt % , ASTM D 874	0.81
Product Code	210090

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC FLEX ENERGY

Product Description

PROTEC FLEX ENERGY are an advanced technology petrol engine oils, one of the first to be introduced formulated from fully synthetic base oils with the latest technology additives that meets and exceeds API SP and ILSAC GF-6A qualified in SAE 5W-20, SAE 0W-30 & SAE 10W-30 viscosity. It is specifically designed with advanced "Triple Shield" formula that provides three levels of protection: Essential protection: Class leading engine sludge, engine wear & oil thickening protection

- Essential protection: Class leading engine sludge, engine wear & oil thickening protection
- Tailored protection: Class leading Performance capabilities include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection.
- Fuel economy and Fuel economy retention

PROTEC FLEX ENERGY is formally approved for API SP, ILSAC GF-6A, and GM dexos1 Generation 3 specifications. Compatible with all vehicles running on lead free gasoline, ethanol, LPG and CNG.

Applications

PROTEC FLEX ENERGY is recommended for all modern Americans/Japanese/Korean/European/Chinese petrol vehicles with multi fuel use.

Performance Standards

PROTEC FLEX ENERGY SAE 0W-40 meets and exceeds the following International specifications:

API SP approved

ILSAC GF-6A

Benefits

PROTEC FLEX ENERGY provides:

- Low friction formula helps improve fuel mileage.
- Prevent engine damage by providing outstanding LSPI protection
- Excellent Piston / Rings cleanliness which increase engine and oil life.
- Enhance cams and Chain durability
- Minimize corrosion due to stop-start driving.
- Proven technology in Hybrid vehicles
- Excellent protection for high performance engines.
- Enhances After Treatment Devices (ATD) protection.
- Control high temperature oxidation, deposits and prevent sludge and other deposits

SAE Grade	5W-20	0W-30	10W-30
Viscosity			
mm ² /s @100°C	7.9	10.2	9.9
mm ² /s @ 40°C	43.7	55.5	57.1
Viscosity Index	153	174	156
Flash Point, COC, °C	224	228	224
Pour Point, °C	-42	-42	-36
Sulphated Ash, wt. %	0.8	0.82	0.8
Product Code	210102	210104	210100

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC X-TREME

Product Description

ENOC PROTEC X-TREME is an advanced technology fully synthetic lubricant for the latest model passenger cars requiring performance specification API SP, ACEA A3/B4 developed to provide maximum protection for all passenger cars, including high performance cars and cars with low emission engines with catalytic converters fitted to the vehicles. It is available in several viscosity grades to provide maximum engine protection and to meet long drain requirements. Compatible for all cars running on lead free gasoline as well as diesel passenger cars with variable fuel quality (without DPF).

Applications

- All new makes of passenger cars requiring API SP / ACEA A3/B4
- High performance cars normally aspirated and turbocharged gasoline engines
- Cars fitted with exhaust catalytic converters to meet low emission requirements
- Latest model Japanese, American and European cars.

Performance Standards

PROTEC X-TREME meets and exceeds the following International specifications:

API	SP	MB Approval	229.5
ACEA	A3/B4	BMW	Long-life Oi LL-01
VW	502.00/505.00	Porsche	A40
PSA	B71 2296	Renault	RN0700/0710

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC X-TREME provides:

- Fully Synthetic formula for extended drain intervals & also ensuring excellent engine protection
- Approved to various global OEM/Industry body specifications
- Suitable for latest technology engines including turbocharged, direct injection gasoline engines, light duty diesel engines & Hybrids.

SAE Grade	0W-40	5W-40
Kinematic Viscosity	0.8532	0.8449
mm ² /s at 40°C		
mm ² /s at 100°C	74.95	84.25
Viscosity Index	13.3	14.1
Flash Point, COC, °C, ASTM D92	180	170
Pour Point, °C, ASTM D97	-39	-39
Phosphorus % Mass, Min.	228	228
Product Code	210106	210105

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC X-TREME

Product Description

ENOC PROTEC X-TREME is an advanced technology fully synthetic lubricant for the latest model passenger cars requiring performance specification API SP, ACEA A3/B4 developed to provide maximum protection for all passenger cars, including high performance cars and cars with low emission engines with catalytic converters fitted to the vehicles to provide maximum engine protection and to meet long drain requirements. Compatible for all cars running on lead free gasoline as well as diesel passenger cars with variable fuel quality (without DPF).

Applications

- All new makes of passenger cars requiring API SP / ACEA A3/B4
- High performance cars normally aspirated and turbocharged gasoline engines
- Cars fitted with exhaust Catalytic Converters to meet low emission requirements
- Latest model Japanese, Korean, American and European cars

Performance Standards

PROTEC X-TREME meets the following International specifications:

API	SP
ACEA	A3/B4

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC X-TREME provides:

- Optimum power protection in high performance vehicles
- Excellent resistance to oil thickening during in service usage
- Helps oil consumption control

SAE Grade	5W-50**
Density at 15°C, g/mL, ASTM D4052	0.8564
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	118.3
mm ² /s at 100°C	19.6
Viscosity Index	185
Pour Point, °C, ASTM D97	-39
Flash Point, °C, ASTM D92	230
Product Code	210107

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC KUWA SPEED 4700

Product Description

ENOC KUWA SPEED 4700 5W-30 is a high performance synthetic engine oil formulated to provide exceptional cleaning power and excellent wear protection. ENOC KUWA SPEED 4700 has been expertly formulated with low SAP additive chemistry to prolong the life and maintain the efficiency of emission systems of latest EURO 6 engines. ENOC KUWA SPEED 4700 meets and exceeds the requirements of many leading car manufacturer's standards for new modern diesel and gasoline engine passenger cars, particularly Volkswagen.

Applications

- For all types of modern automobile engines with the latest Diesel Particulate Filters (DPFs) and Gasoline Catalytic Converters (CATs)
- It is formulated to help deliver outstanding performance and protection in conjunction with proven fuel economy benefits
- For Diesel and Gasoline Engines

Performance Standards

KUWA SPEED 4700 5W-30 is suitable for use as engine oil in the following OEM and International specification requirement:

API	SN		
Volkswagen	(Gasoline/Diesel) 504 00/ 507 00	ACEA	C3
BMW Longlife	04	MB Approval	229.51
Porsche	C 30		

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.



Benefits

KUWA SPEED 4700 5W-30 provides:

- Exceptional sludge protection demonstrated in tough ACEA & VW tests
- Proven fuel economy benefits
- Provides class leading wear protection that helps improve engine life
- Protects expensive after treatment exhaust devices that helps maintaining emission performance

SAE Grade	5W-30
Density at 15°C, kg/L, ASTM D4052	0.8444
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	71.84
mm ² /s at 100°C	12.3
Pour Point, °C, ASTM D97	-42
Flash Point, °C (COC), ASTM D92	226
CCS Viscosity, mPa.s, ASTM D 5293	6200@-30°C
Product code	200046

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC KUWA SUPREME 9130

Product Description

ENOC KUWA SUPREME 9130 5W-30 is a synthetic multigrade SAE 5W-30 lubricant formulated for use in modern turbocharged, Supercharged, direct injection gasoline and diesel passenger cars and light diesel trucks. KUWA SUPREME 9130 is formulated with synthetic base stock with a combination of high performance additive components and friction modifiers. It gives long engine service performance, engine wear control, fuel efficiency, low temperature protection and exhaust emission control. It meets the requirements of ACEA European sequence A5/ B5 and A1/ B1 requirements for low friction, low viscosity lubricants for gasoline and light diesel engines.

Applications

- All makes of passenger cars
- High performance normally aspirated and turbocharged engines
- Intended for use over extended drain intervals in high performance gasoline and light duty diesel engines
- Light commercial vehicles

Performance Standards

KUWA SUPREME 9130 5W-30 meets and exceeds the following International specifications

API SN* /CF FORD WSS- M2C913- C/D	
Approved Jaguar Land Rover STJLR.03.5003	Meets Renault RN 700 ACEA A5/B5

*Meets engine test requirements

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.



Benefits

KUWA SUPREME 9130 5W-30 provides:

- The highest level of engine protection for various engine manufacturers
- Long engine life
- Superior resistance to oil thickening
- Offers high speed, high temperature city stop/ start engine wear and corrosion protection
- Low oil consumption and engine
- Easy all year round starting

SAE Grade	5W-30
Density at 15°C, kg/L, ASTM D4052	0.8502
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	55.1
mm ² /s at 100°C	9.9
Pour Point, °C, ASTM D97	-42
Flash Point, °C (COC), ASTM D92	226
CCS Viscosity, mPa.s, ASTM D 5293	4400@-30°C
Product code	200056

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

PROTEC GREEN C3

Product Description

ENOC PROTEC GREEN C3 is a fully synthetic multigrade lubricant formulated for use in modern turbocharged, supercharged, direct injection gasoline and diesel passenger cars and light diesel trucks. PROTEC GREEN C3 is formulated with fully synthetic base stock with a combination of high-performance additive components. that protects from Low Speed Pre-Ignition (LSPI) phenomena in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection. Meets the requirements of ACEA European sequence C3 requirements for low emission device protection for gasoline and light diesel passengers' engines.

Applications

- All makes of passenger cars (older than model year 2016)
- High performance normally aspirated and turbocharged engines
- Intended for use over extended drain intervals in high performance gasoline and light duty diesel engines.
- Hybrid vehicles
- Light commercial vehicles

Performance Standards

PROTEC GREEN C3 meets and exceeds the following International specifications:

API	SP	ACEA	C3
MB-Approval	229.52(SAE 5W-30)	Opel	OV 0401547 (SAE 5W-30)
MB-Approval	229.31(SAE5W-40)	BMW	LL-04 (SAE 5W-30)

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC GREEN C3 provides:

- Fully Synthetic formula for extended drain intervals.
- The highest level of engine protection for various engine manufacturers.
- Prevent engine damage by providing outstanding LSPI protection
- Excellent Piston/Rings cleanliness which increase engine and oil life
- Offers high speed, high temperature city stop/ start engine wear and corrosion protection.
- Low oil consumption and engine deposits
- Proven technology in Hybrid vehicles

SAE Grade	5W-30	5W-40
Density	0.8511	0.8502
Kinematic Viscosity mm ² /s @ 40°C	69.1	88.4
Kinematic Viscosity mm ² /s @100°C	11.5	14.51
Viscosity Index	161	171
TBN	7.5	7.5
Flash Point, COC, °C	228	232
Pour Point, °C	-39	-39
Product Code	210092	210093

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

PROTEC ULTRA C3

Product Description

ENOC PROTEC ULTRA C3 is a synthetic technology multigrade lubricant formulated for use in modern turbocharged, supercharged, direct injection gasoline and diesel passenger cars and light diesel trucks. PROTEC ULTRA C3 is formulated with synthetic technology base stock with a combination of high- performance additive components. that protects from Low Speed Pre-Ignition (LSPI) phenomena in GDI turbocharged engines, provides turbocharger deposit protection & engine oil aeration protection. Meets the requirements of ACEA European sequence C3 requirements for emission device protection for gasoline and light diesel passengers' engines.

Applications

- All makes of passenger cars (older than model year 2016)
- High performance normally aspirated and turbocharged engines
- Intended for use in high performance gasoline and light duty diesel engines.
- Hybrid vehicles
- Light commercial vehicles

Performance Standards

PROTEC ULTRA C3 meets and exceeds the following International specifications:

API	SP	ACEA	C3
Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals..			

Benefits

PROTEC ULTRA C3 provides:

- The highest level of engine protection for various engine manufacturers.
- Prevent engine damage by providing outstanding LSPI protection
- Excellent Piston / Rings cleanliness which increase engine and oil life
- Offers high speed, high temperature city stop/ start engine wear and corrosion protection.
- Low oil consumption and engine deposits
- Proven technology in Hybrid vehicles

SAE Grade	5W-30	5W-40
Density	0.8442	0.8426
Kinematic Viscosity mm ² /s @ 40°C	61.7	84.8
Kinematic Viscosity mm ² /s @100°C	10.6	14.1
Viscosity Index	163	172
TBN	6.6	6.6
Flash Point, COC, °C	228	234
Pour Point, °C	-39	-39
Product Code	210096	210097

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC ULTRA

Product Description

PROTEC ULTRA SAE 10W-30 is an advanced technology petrol engine oil formulated from synthetic technology base oils and the latest technology additives that meets and exceeds API SP and ILSAC GF-6A qualified in SAE 10W-30 viscosity. It is specifically designed with advanced "Triple Shield" formula that provides three levels of protection:

- Essential protection: Class leading engine sludge, engine wear & oil thickening protection
- Tailored protection: Class leading Performance capabilities include Low Speed Pre-Ignition (LSPI) reduction in GDI turbocharged engines, Turbocharger deposit protection & Engine oil aeration protection.
- Fuel economy and Fuel economy retention

PROTEC ULTRA engine oil is formally approved for API SP, and ILSAC GF-6A specifications. Compatible with all vehicles running on lead free gasoline, ethanol, LPG and CNG.

Applications

PROTEC ULTRA SAE 10W-30 is recommended for all American/Japanese/Korean/European/Chinese petrol vehicles multi fuel use.

Performance Standards

PROTEC ULTRA SAE 10W-30 meets and exceeds the following OEM and International Specifications:

API	SP approved
ILSAC	GF-6A

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC ULTRA provides:

- Low friction formula helps improve fuel mileage.
- Prevent engine damage by providing outstanding LSPI protection
- Excellent Piston / Rings cleanliness which increase engine and oil life.
- Enhance cams and Chain durability
- Minimize corrosion due to stop-start driving.
- Proven technology in Hybrid vehicles
- Excellent protection for high performance engines.
- Enhances After Treatment Devices (ATD) protection.
- Control high temperature oxidation, deposits and prevent sludge and other deposits

SAE Grade*	10W-30
Viscosity	
mm ² /s @ 100°C	10.8
mm ² /s @40°C	71.56
Viscosity Index	140
Flash Point, COC, °C	224
Pour Point, °C	-36
Phosphorus, wt %	<0.08
Product Code	210109

Technical Data*

ENOC PROTEC ULTRA

Product Description

ENOC PROTEC ULTRA SAE 10W-40 is specially formulated using latest additive technology and synthetic blend lubricant base oil technology suitable for modern passenger car engines exceeding the latest performance specification API SP. Developed to provide maximum protection for modern passenger cars, including low emission engines and high-performance vehicles. It helps provide comfort in driving due to smooth engine operation and meets long drain requirements for passenger cars with gasoline engines.

Applications

- All new passenger cars gasoline and light duty diesel engines
- High performance cars normally aspirated and turbocharged engines
- Gasoline direct injection engines
- Latest model of Japanese, American and European cars

Performance Standards

PROTEC ULTRA SAE 10W-40 meets and exceeds the following International specifications: Approved

API	SP
-----	----

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

PROTEC ULTRA SAE 10W-40 provides:

- Help maximize and prevent engine power loss while maintaining cleanliness
- Low Speed Pre-Ignition (LSPI) protection in turbocharged direct injection engines
- Proven performance in Hybrid engines
- Meets and exceeds the latest industry API specifications giving performance assurance to Customers

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.86
Kinematic Viscosity, mm ² /s ASTM D 445	
mm ² /s @ 40°C	95.5
mm ² /s @100°C	14.1
Viscosity Index, ASTM D 2270	151
Flash Point, COC, °C, ASTM D 92	232
Pour Point, °C, ASTM D 97	-39
CCS Viscosity, mPa.s, ASTM D 5293	6200 @-25°C
Sulphated Ash, wt. %, ASTM D 874	0.80
Product Code	210017

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC PREMIUM

Product Description

ENOC PROTEC PREMIUM SAE 5W-30 is high quality gasoline engine oil, formulated with baseoils synthesized using advanced refining processes and advanced technology additives. The product is designed to meet the latest API SP performance specification. It provides maximum protection for modern passenger car engines including low emission engines fitted with three-way catalyst at exhaust. It is suitable for all types of driving conditions (city, highway and harsh) meeting market conditions. Tailored to provide exceptional protection against sludge in older engines as well as oil consumption control.

Applications

PROTEC PREMIUM SAE 5W-30 is recommended for all modern American/Japanese/Korean/European/Chinese petrol vehicles with multi fuel use.

Performance Standards

PROTEC PREMIUM SAE 5W-30 meets and exceeds the following OEM and International Specifications:

API SP approved
ILSAC GF-6A

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC PREMIUM SAE 5W-30 provides:

- Low friction formula helps improve fuel mileage
- Exceptional Viscosity retention helps ensure smooth engine running
- Sludge and deposit control ensure to keep engines cleaner for longer
- Low Speed Pre-Ignition (LSPI) protection in turbocharged direct injection engines to protect critical engine parts
- Proven protection under a wide variety of operating conditions



Technical Data*

SAE Grade	5W-30
Viscosity	
mm ² /s @ 100°C	10.9
mm ² /s @ 40°C	67.11
Viscosity Index	154
Flash Point, COC, °C	226
Pour Point, °C	-39
Phosphorus, wt %	<0.08
Product Code	210111

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC PREMIUM

Product Description

PROTEC PREMIUM SAE 10W-30 is gasoline engine oil, formulated to meet the latest API SP performance specification. Developed to provide maximum protection for use in modern passenger cars including low emission engines fitted with three-way catalyst at exhaust. It is suitable for all types of driving conditions (city, highway and harsh) meeting market conditions. Tailored to provide exceptional protection against sludge and contamination in older engines as well as oil consumption control.

Applications

PROTEC PREMIUM SAE 10W30- is recommended for all Americans/Japanese/Korean/European/Chinese petrol vehicles with multi fuel use

Performance Standards

PROTEC PREMIUM SAE 10W-30 meets and exceeds the following OEM and International Specifications:

API SP approved
ILSAC GF-6A

Benefits

PROTEC PREMIUM SAE 10W-30 Provides:

- Modern
- Low friction formula helps improve fuel mileage.
- Exceptional Viscosity retention helps ensure smooth engine running
- Sludge and deposit control ensure to keep engines cleaner for longer
- Low Speed Pre-Ignition (LSPI) protection in turbocharged direct injection engines to protect critical engine parts
- Proven protection under a wide variety of operating conditions



Technical Data*

SAE Grade*	10W-30
Viscosity	
mm ² /s @ 100°C	10.8
mm ² /s @ 40°C	71.56
Viscosity Index	140
Flash Point, COC, °C	224
Pour Point, °C	-36
Phosphorus, wt %	<0.08
Product Code	210110

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC PREMIUM

Product Description

ENOC PROTEC PREMIUM gasoline engine oils are formulated to meet the latest API SP performance specification. Developed to provide maximum protection for use in modern passenger cars including low emission engines fitted with three-way catalyst at exhaust. It is suitable for all types of driving conditions (city, highway and harsh) meeting market conditions. Tailored to provide exceptional protection against sludge and contamination in older engines as well as oil consumption control.

Applications

- All makes of passenger cars where SAE 15W-40 & SAE 20W-50 is recommended
- Proven performance in normally aspirated and turbocharged gasoline engines
- Light commercial vehicles

Performance Standards

PROTEC PREMIUM meets and exceeds the following International specifications:

API SP

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC PREMIUM provides:

- Exceptional Viscosity retention helps ensure smooth engine running
- Sludge and deposit control ensures to keep engines cleaner for longer
- Low Speed Pre-Ignition (LSPI) protection in turbocharged direct injection engines to protect critical engine parts
- Proven protection under a wide-variety of operating conditions



SAE Grade	15W-40	20W-50
Kinematic Viscosity mm ² /s @ 40°C	113	166
Kinematic Viscosity mm ² /s @100°C	14.6	18.9
Viscosity Index	132	129
Sulphated Ash %	0.85	0.85
Flash Point, COC, °C	232	236
Pour Point, °C	-39	-33
Product Code	210099	210098

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC PREMIUM CNG

Product Description

ENOC PROTEC PREMIUM CNG is a high-performance gas engine oil specially formulated with refined high Viscosity Index base stocks and new type low ash additives for CNG and LPG engines to keep the environment clean, dissipates heat & keeps the gas engine cool.

Applications

- All makes of passenger cars
- Suitable for CNG and LPG powered large engines equipped with natural gas engine
- High performance normally aspirated and turbocharged gasoline engines
- Four stroke motorcycle engines where motor oils are recommended
- Japanese and American manufactured cars
- Light commercial vehicles

Performance Standards

PROTEC PREMIUM CNG meets and exceeds the following International specifications:

API SP

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC PREMIUM CNG provides:

- Appropriate ash to prevent spark plug from blocking, reducing emission pollution
- Offer outstanding resistance to pre-ignition and protection against carbon deposit on valves, wearing and ring sticking
- Extended engine life
- Superior resistance to oil thickening
- Outstanding high temperature lubricity, detergency, keeping engines clean
- Easy all year round starting



SAE Grade*	20W-50
Kinematic Viscosity mm ² /s @ 40°C	166
Kinematic Viscosity mm ² /s @100°C	18.9
Viscosity Index	129
Flash Point, C°C, °C	236
Pour Point, °C	-33
Product Code	210108

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC SUPER +



Applications

ENOC Protec Super+ 20W-50 is a multigrade crankcase lubricant with multi-fuel benefits, meaning it is suitable for use in petrol, diesel, CNG, LPG engines.

Performance standards

PROTEC SUPER + 20W-50 meets and exceeds the following International specifications:

API	SG/CF
-----	-------

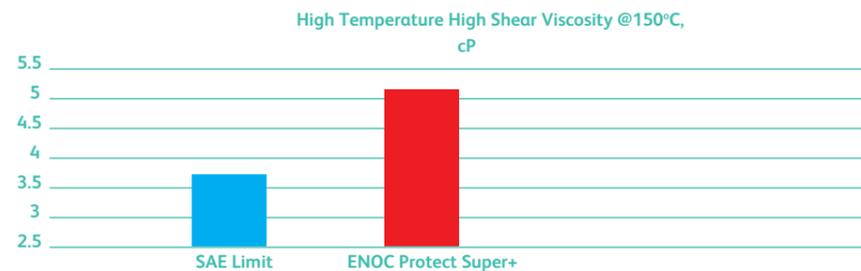
Main benefits

- Excellent deposit and oxidation resistance
- Stay-in-grade performance ensured by the use of a shear stable VI improver
- Optimum protection against engine wear and corrosion

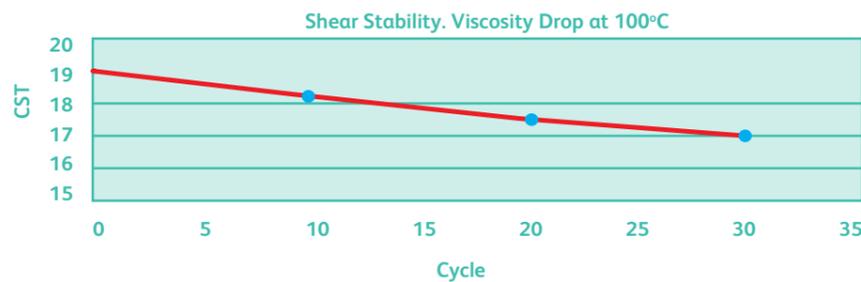
Summary of key “protec” benefits

Protec Super+ 20W-50 has been tested under wide variety of severe conditions that evaluates its ability to maintain “right Viscosity” at different temperatures. The fundamental strength of ENOC Protec Super+ 20W-50. Depicted under are results against limits. Essentially at lower temperature oil must be fluid enough to provide protection to engine parts & at high temperatures it should be thick enough to provide protection against wear & deposits.

i) High Temperature High Shear Viscosity is measured at 150oC which is the typical temperature in many parts of engine running. ENOC Protec Super+ is way above the SAE limits indicating its suitability to work in high heat condition.



ii) Shear stability of engine oil is evaluated to assess oil’s ability to maintain its viscosity under high shearing forces seen in engine operating condition which tend to break the lubricant molecules. ENOC Protec Super+ exhibits excellent shear stability to stay in grade as per SAE requirements indicating its ability to work in today’s high speed modern engines very effectively.



iii) Protec Super+ has been successfully assessed in actual engine tests that evaluates oil’s ability to control deposits due to heat & load. As seen from the graph as under ENOC Protec Super+ has much cleaner pistons indicating that it has excellent additives to maintain detergency throughout its useful life in engine operating in harsh conditions.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ACCEPTABLE

UN ACCEPTABLE

Customer’s Problem Solver

Protec Super+ SAE 20W-50 has been tested in stressful conditions to evaluate parameters like engine deposits, oil thickening, wear protection, oil consumption & rust protection at API SG/CF Standards that addresses issues of Consumers of higher engine stresses, changes in fuel quality, changes in driving style & most importantly maintenance cost. ENOC Protec Super+ SAE 20W-50 gives all round performance in all of these parameters to give utmost peace of mind to end Consumers.



Tests	Higher Engine stress	Changes in Fuel Quality	Changes in driving style	Maintenance Cost
Engine deposits	●	●	●	●
Oil thickening	●	●	●	●
Wear Protection	●		●	●
Oil Consumption	●			●
Rust Protection		●		●

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

SAE Grade	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8802
Colour (visual)	Red
Odour	Sweet Fruity Odour
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	165.3
mm ² /s at 100°C	18.52
Pour Point,°C, ASTM D97	-27
Flash Point,°C (COC), ASTM D92	236
CCS Viscosity, mPa.s, ASTM D 5293	8810 @-15°C
Product code	210053

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC SPEED

Product Description

ENOC PROTEC SPEED is a high technology-based gasoline engine oil exceeding the latest API SJ performance specification. Developed to provide maximum protection for use in passenger car. It is suitable for all types of driving conditions (city, highway and harsh). Compatible for all cars running on lead free gasoline and catalytic converters.

Applications

- All makes of passenger cars
- High performance normally aspirated and turbocharged gasoline engines
- Four stroke motorcycle engines where motor oils are recommended
- Japanese and American manufactured cars
- Light commercial vehicles

Performance Standards

PROTEC SPEED meets and exceeds the following International specifications:

API SJ, SH
ACEA A2/B2

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC SPEED provides:

- Extended Engine Life
- Superior resistance to oil thickening
- Excellent protection against wear
- Low engine deposits
- Easy all year round starting



SAE Grade*	15W-40
Kinematic Viscosity mm ² /s @ 40 °C	109
mm ² /s @100 °C	14.6
Viscosity Index	138
Flash Point, COC, °C	228
Pour Point, °C	-27
Product Code	210047

Technical Data*

ENOC PROTEC SUPER SG

Product Description

ENOC PROTEC SUPER SG is a modern high technology gasoline engine oil, available in a range of viscosity grades which meets the API SG specification for gasoline engines including turbo-charged units. Blended from high quality base oils and advanced additive technology will provide excellent service for modern passenger cars and light commercial vehicles.

Applications

- Passenger cars with multivalve engines with or without turbocharging.
- Japanese and American model cars requiring API SG specification.
- Light commercial trucks with gasoline or light duty diesel engines.
- Motor cycles where four-stroke gasoline engine oils are recommended.
- Portable gasoline engine generator sets.

Performance Standards

PROTEC SUPER SG meets and exceeds the following International specifications:

API SG

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC SUPER SG provides:

- Long engine life.
- Superior resistance to oil thickening.
- Excellent protection against wear.
- Low engine deposits.
- Easy all year round starting.



SAE Grade	15W-40	20W-50
Density at 15°C, g/mL, ASTM D4052	0.8788	0.8848
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	109	165.3
mm ² /s at 100°C	14.5	18.52
Viscosity Index	-30	-27
Pour Point, °C, ASTM D97	230	236
Flash Point, °C, ASTM D92	6600 @-20°C	8810 @-15°C
Product code	210025	210003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC SUPER SF

Product Description

ENOC PROTEC SUPER SF 20W-50 is a superior quality multigrade motor oil formulated to meet most American, European and Japanese car manufacturers' specifications. Its formulation is specifically designed for city operations where traffic conditions involve stop - start vehicle patterns as well as general long distance driving.

Applications

- All passenger Cars.
- Gasoline four stroke engines used in many light duty applications.
- Ideal for multi-trip light vans.

Performance Standards

PROTEC SUPER SF 20W-50 meets and exceeds the following International specifications:

API	SF
-----	----

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC SUPER SF 20W-50 provides:

- Prolonged engine life through excellent wear protection of engine components.
- Superior oil consumption control through advanced detergent/dispersant technology.
- Reduced engine deposits, varnish and lacquer.
- Suitability for older engines.



SAE Grade	20W-50
Density at 15°C, g/mL, ASTM D4052	0.8826
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	156.9
mm ² /s at 100°C	18.41
Pour Point, °C, ASTM D97	-24
Flash Point, °C (COC), ASTM D92	236
CCS Viscosity, mPa.s, ASTM D 5293	9120 @-15oC
Product code	210013

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC SPECIAL SF

Product Description

ENOC PROTEC SPECIAL offers a superior quality multigrade motor oil formulated to meet most American, European, and Japanese car manufacturers' specifications. Its formulation is specifically designed for city operations where traffic conditions involve stop - start vehicle patterns as well as general long-distance driving.

Applications

- Light duty vehicles with naturally aspirated engines- Passenger Cars, CNG and Diesel.
- Gasoline four stroke engines used in many light duty applications
- Ideal for multi-trip mini vans

Performance Standards

PROTEC SPECIAL meets the following International specifications:

API	SF
-----	----

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC SPECIAL provides:

- Prolonged engine life through excellent wear protection of engine components
- Superior oil consumption control through advanced detergent/dispersant technology
- Reduced engine deposits, varnish, and lacquer
- Suitability for older engines



SAE Grade	20W-50
Kinematic Viscosity	
mm ² /s @ 40 °C	167
mm ² /s @100 °C	18.6
Viscosity Index	125
Flash Point, COC, °C	240
Pour Point, °C -	-24
Total Base Number (D-2896)	6
Product Code	210061

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC MAX

Product Description

ENOC PROTEC MAX offers a range of superior quality multigrade motor oils formulated to meet most American, European and Japanese car manufacturers' specifications. It is of low Sulphated Ash for light vehicles with gasoline, CNG, and diesel engines requiring low emissions performance specifications. Its formulation is specifically designed for city operations where traffic conditions involve stop - start vehicle patterns as well as general long distance driving.

Applications

- All makes of light duty vehicles with natural and Turbo charged - Passenger Cars, CNG and diesel
- Gasoline four stroke engines used in many light duty applications
- Ideal for multi-trip mini vans

Performance Standards

PROTEC MAX meets and exceeds the following International specifications:

API SF

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC MAX provides:

- Prolonged engine life through excellent wear protection of engine components
- Superior oil consumption control through advanced detergent/dispersant technology
- Reduced engine deposits, varnish and lacquer
- Suitability for older engines

SAE

15W- 40
20W- 50

SAE Grade	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8810	0.8886
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	109	167.1
mm ² /s at 100°C	14.5	18.23
Pour Point,°C, ASTM D97	-27	-24
Flash Point,°C (COC), ASTM D92	230	236
CCS Viscosity, mPa.s, ASTM D 5293	6600 @-20°C	9122@-15°C
Product code	210026	210002

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC HD SF

Product Description

ENOC PROTEC HD SF is a monograde engine oil developed for gasoline and naturally aspirated diesel engines. It is ideally suited for use in cars and light trucks where the customers need can be met with a cost-effective lubricant using standard oil change periods. PROTEC HD exceeds the API classification SF.

Applications

- Passenger cars and light commercial vehicles
- Agricultural tractors
- Pumps using small gasoline and diesels engines
- Portable generator sets

Performance standards

PROTEC HD SF meets and exceeds the following International specifications:

API	SF
-----	----

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC HD SF provides:

- Good performance in gasoline and diesel engines
- Control of sludge and deposits
- Advanced detergent/dispersant properties
- Resistance to oil thickening



SAE Grade	40	50
Kinematic Viscosity; ASTM D 445		
mm ² /s at 40°C	144	211
mm ² /s at 100°C	14.25	18.5
Viscosity Index	96	97
Flash Point, (COC), °C	248	260
Pour Point, °C	-15	-9
Product code	210007	210015

Technical Data*

ENOC PROTEC HD SE

Product Description

ENOC PROTEC HD SE is a monograde engine oil suitable for gasoline and naturally aspirated diesel engines. It has been developed for use in older cars and light trucks and some model heavy truck engines where the needs of customers can be met with a very cost-effective lubricant using standard oil change periods.

Applications

- Passenger cars and light commercial vehicles
- Older model heavy duty trucks
- Agriculture tractors
- Small gasoline and diesels engines
- Portable generator sets

Performance Standards

PROTEC HD SE meets and exceeds the following International specifications:

API	SE
-----	----

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC HD SE provides:

- Good performance in gasoline and diesel engines
- Control of sludge and deposits
- Effective detergent/dispersant properties
- Resistance to oil thickening



SAE Grade	40	50
Kinematic Viscosity; ASTM D 445		
mm ² /s at 40°C	140	214
mm ² /s at 100°C	14.1	18.5
Viscosity Index; ASTM D 2270	98	96
Flash Point, (COC), °C, ASTM D 92	248	260
Pour Point, °C, ASTM D 97	-15	-9
Product code	210001	210005

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.





Heavy Duty Diesel Engine Oils

ENOC VULCAN 999X ENERGY

Product Description

ENOC VULCAN 999X ENERGY 10W-30 is the latest API CK-4 performance product utilizing a “Friction Management” technology for heavy duty diesel engine oils.

Leading features

- Meets the latest & most advanced heavy duty diesel specification API CK-4 along with latest global OEM specifications making it a truly multi-fleet product
- API CK-4 DEO which is backward compatible to earlier generation of engines, but provides fuel economy benefits (need not go for API FA-4 which has restrictions in backward compatibility)
- Provides outstanding wear protection as demonstrated in advanced high powered diesel engines (3 times performance reserve)*
- Excellent oil consumption control



Applications

- Suitable for heavy and light duty commercial vehicles meeting latest global emissions standards as well as older fleet vehicle
- Suitable for Agricultural, mining and construction vehicles meeting EU stage IIIA, IIIB and IV and US Tier 4 emissions standards as well as older generation equipment

Performance Standards

VULCAN 999X ENERGY 10W-30 meets and exceeds the following International specifications:

API	CK-4	Caterpillar	ECF-3
ACEA	E6, E7, E9	MAN	M3677
Volvo	VDS-4.5	Renault Trucks	VI RLD-3
MB Approval	228.51	MTU	Type 3.1
Detroit Diesel	DDC 93K218	JASO	DH-2
MACK	EOS-4.5	Cummins	CES 20081
Deutz	DQC IV-10 LA		

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals

Benefits

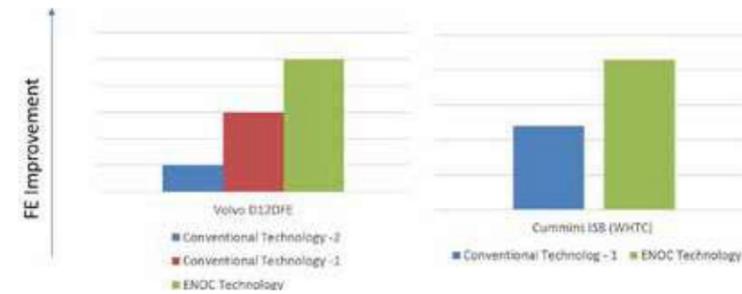
VULCAN 999X ENERGY 10W-30 provides:

- Durability = Longer Engine Life
- Fuel Economy = Saves you money
- Emission = Protect our future

- Provides outstanding wear protection 3 times better than the standard limits
- Outstanding fuel economy through its unique “friction management” technology
- Increases oil drain interval and reduce oil top-up due to its excellent consumption control capabilities
- Excellent resistance to aeration insuring better anti oxidation and hydraulic performance
- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improve engine life
- Excellent low temperature viscosity insures lowest cranking resistance and prompt pumpability creating full flow film
- Protects and enhances Exhaust After Treatment Devices EURO VI and beyond

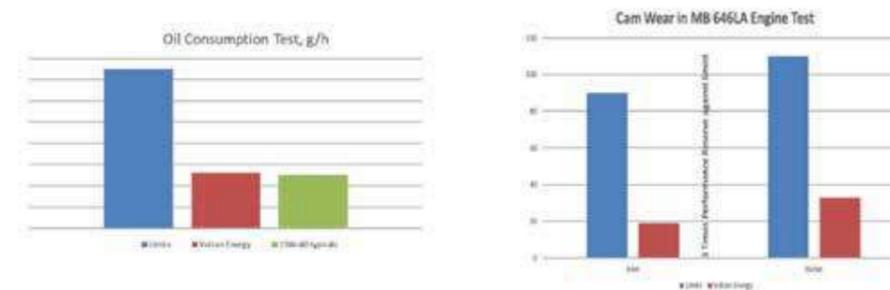
HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

Outstanding fuel economy through its unique “Friction Management” technology

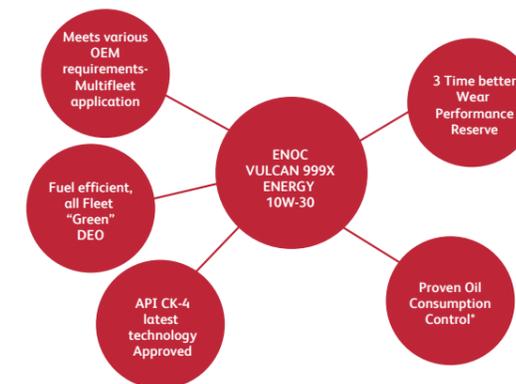


Advanced lubricant like ENOC Vulcan Energy 999X with 1% savings in fuel compared to conventional higher viscosity engine oils can yield huge fuel savings & reduction in CO2 emissions.

- For a heavy duty truck covering 150,000km per year - this could result in fuel savings of up from 2000 to 5000 USD depending on fuel prices in a country and a reduction in CO2 emissions of up to 1.4 MT per truck per year
- For a bus covering 70,000km per year - this could result in fuel savings of up to 1000 to 2800 USD depending on fuel prices in a country and a reduction in CO2 emissions of up to 0.75 MT per bus per year



This is very important to be demonstrated & proved especially on possible Customer concern of wear problems associated with lower viscosity fluid.



SAE Grade	10W-30
Density at 15°C, kg/L, ASTM D4052	0.8665
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	75.73
mm ² /s at 100°C	11.67
Pour Point, °C, ASTM D97	-39
Flash Point, °C (COC), ASTM D92	234
CCS Viscosity, mPa.s, ASTM D 5293	5802 @-25°C
TBN, mg KOH/g, ASTM D 2896	10.2
Product code	200068

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Technical Data*

ENOC VULCAN 990X EXLD

Product Description

ENOC VULCAN 990X EXLD 10W-40 is the latest API CK-4 performance heavy duty diesel engine oil, utilizing an advanced detergent synthetic technology (TBN Shield Formula) for long drain intervals.

Leading features

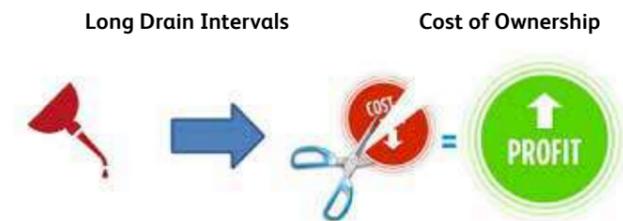
- Meets the latest & most advanced heavy duty diesel specification API CK-4 along with latest global OEM specifications making it a truly multi-fleet product
- Designed to deliver extended drain capabilities without compromising on engine durability leading to savings for fleet customers

ENOC Vulcan 990X EXLD 10W-40 has class leading TBN retention properties ensuring:

- Long Cross-border journeys with no fuel derived issues
- Fleet management confidence over long drain intervals

ENOC Vulcan EXLD 10W-40 delivers long drain, however, with no compromise on:

- Engine deposit control • Oil thickening protection • Corrosive wear control protection



Applications

- Suitable for heavy and light duty commercial vehicles meeting latest global emissions standards as well as older fleet vehicles
- Suitable for Agricultural, mining and construction vehicles meeting EU stage IIIA, IIIB and IV and US Tier 4 emissions standards as well as older generation equipment

Performance Standards

VULCAN 990X EXLD 10W-40 meets and exceeds the following International specifications:

API	CK-4	Caterpillar	ECF-3
ACEA	E6, E7, E9	MAN	M3477
Volvo	VDS-4.5	Renault Trucks	VI RLD-3
MB Approval	228.51	MTU	Type 3.1
MACK	EOS-4.5	JASO	DH-2
Deutz	DQC IV-10 LA	Cummins	CES 20081
Detroit Diesel	DDC 93K218		

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

VULCAN 990X EXLD 10W-40 provides:

- Will help end users reduce maintenance costs through
- Outstanding wear protection
- Superior Piston Cleanliness
- Excellent corrosion protection

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

Proven "TBNShield" Formula in various demanding engine tests



OM 646LA Test evaluates oil ability to control oil thickening & wear using diesel with 5% Biodiesel as fuel in severe duty cycle.

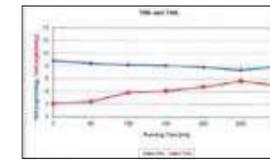


Figure 1 OM 646LA

Volvo D12 is a severe long duration test to evaluate oil's ability to provide oil consumption control & deposit performance.

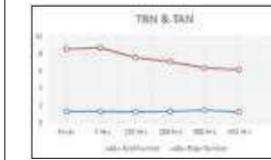


Figure 3 Volvo D12

OM 501LA Test evaluates engine oil's ability to provide engine deposit, wear, turbocharger protection in severe conditions.

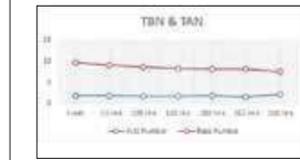
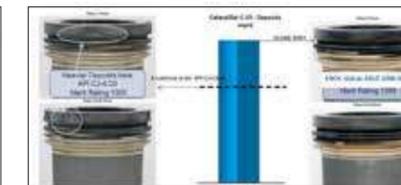


Figure 2 OM 501LA

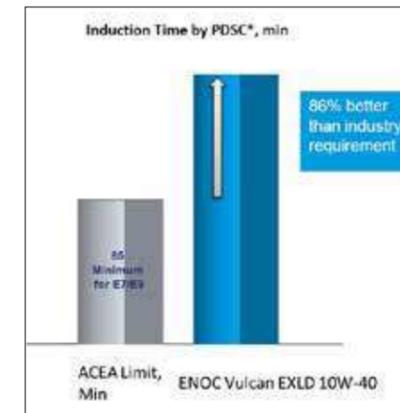
In all different types of tests, the TBNShield Formula ensures good oil condition as well as excellent engine performance



The Mack T-12 test establishes ENOC Vulcan 990X EXLD 10W-40's ability to neutralize acid thus preventing corrosive wear for rings and liners with almost 50% performance reserve!



ENOC Vulcan 990X EXLD 10W-40 exceeded the Caterpillar ECF-3 requirement by 38% in the C13 deposit control test. The Merit Rating was 1386 (Minimum required is 1000 for API CJ-4).



ENOC Vulcan 990X EXLD 10W-40 provides robust oxidation protection as demonstrated in the CEC L-85-99, PDSC* Oxidation test * PDSC: Pressure Differential Scanning Calorimeter: This is the CEC L-85-99 test for Hot Surface Oxidation required in ACEA E sequences.

VULCAN 990X EXLD 10W- 40 key points differentiation:

- Meets various OEM requirements -multifleet application with the latest API CK-4
- 50% better corrosive wear protection reserve*
- Long drain diesel engine oil with TBN Shield Formula
- 38% better engine deposit control
- 86% better oil oxidation performance reserve

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8670
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	91.72
mm ² /s at 100°C	13.72
Pour Point, °C, ASTM D97	-39
Flash Point, °C (COC), ASTM D92	238
CCS Viscosity, mPa.s, ASTM D 5293	6312 @-25°C
TBN, mg KOH/g, ASTM D 2896	10.2
Product code	200069

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 990X EXLD

Product Description

ENOC VULCAN 990X EXLD 15W-40 is an advanced heavy duty diesel engine oil recommended for modern naturally aspirated and turbocharged four-stroke diesel engine using low or high Sulfur fuel in which the API CK-4 and SAE 15W-40 viscosity grade are recommended. ENOC Vulcan 990X EXLD 15W-40 is fully backward compatible; thus, enabling use in older generation diesel engines. It is also compatible with modern low emission diesel engines fitted with Selective Catalytic Reduction (SCR), Diesel Particulate Filter (DPF) and Exhaust Gas Recirculation (EGR) systems. The high Base number retention with ENOC Vulcan 990X EXLD 15W-40 also gives assurance of performance in markets with high fuel Sulphur.

Applications

- Heavy duty Diesel Vehicles fitted with exhaust after treatment system such as particulate filters, EGR and catalytic converters to meet low emission requirements EURO V & VI
- Compatible with other engine oils but recommended not to mix to enhance the life of Exhaust After Treatment devices
- Suitable for mixed fleet operation
- Recommend for variable sulphur diesel fuel applications

Performance Standards

VULCAN 990X EXLD 15W-40 meets and exceeds the following International specifications:

API ACEA	CK-4/CJ-4/CI-4 PLUS/SN E9	Caterpillar MAN	ECF-3 M3575
Volvo	VDS-4.5	Renault Trucks	VI RLD-3
MB Approval	228.31	MTU	Type 2.1
MACK	EO-S 4.5	Detroit Diesel	DFS 93K222
Deutz	DQC III-10 LA	Cummins	CES 20086
Ford	WSS-M2C171-F		
Detroit Diesel	DDC 93K218		



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

VULCAN 990X EXLD 15W-40 provides:

- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improves engine life
- Protects Exhaust After Treatment Devices thus suitable for low emission engines
- Increases the catalyst life because of low phosphorus level
- Provides optimum oil drain intervals and low oil consumption
- Excellent protection against wear
- Specially formulated for protection against heavy load applications

SAE Grade	15W-40
Density at 15°C, kg/L, ASTM D4052	0.8768
Viscosity, Kinematic, ASTM D 445	
KV at 40°C	112.4
KV at 100°C	14.5
Pour Point, °C, ASTM D97	-27
Flash Point, °C (COC), ASTM D92	232
CCS Viscosity, mPa.s, ASTM D 5293	6655 @-20°C
TBN, mg KOH/g, ASTM D 2896	9.8
Product code	200084

Technical Data*

ENOC VULCAN 755X

Product Description

ENOC VULCAN 755X SAE 10W-40 is a fully synthetic Superior High Performance long drain diesel engine oil developed for modern European engines meeting the EURO IV or EURO V emission standards without DPF. This lubricant has been developed to exceed ACEA E4 and Mercedes Benz 228.5 and other long oil drain specifications. VULCAN 755X SAE 10W-40 offers significant high quality base number reserve for diesel trucks operating on high sulphur fuel and for extended long drain periods.

Applications

- European engines used in long drain, high mileage applications
- Modern high performance automotive diesel engines – EURO IV or EURO VI (Non DPF)
- All vehicle makes used in mixed fleet transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 755X SAE 10W-40 meets and exceeds the following OEM and International Specifications:

ACEA	E4
Mercedes Benz	228.5
MAN	M 3277
API	CF
SCANIA	LDF-3



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 755X SAE 10W-40 provides:

- Excellent engine cleanliness through advanced detergent technology
- Exceptional reduced engine wear and oil consumption
- Trouble free operation between long drain service intervals
- High synthetic thermal stability reducing sludge and varnish
- High fluidity reduces start-up wear

SAE Grade	10W-40
Density at 15°C	0.86
Kinematic Viscosity mm ² /s @ 40°C	85.5
Kinematic Viscosity mm ² /s @ 100°C	13.4
Viscosity Index	159
Flash Point, COC, °C	236
Pour Point, °C	-39
BN No. ASTM D2896	16
Product code	200081

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN GREEN

Product Description

ENOC VULCAN GREEN 10W-40 is an advanced universal low SAPS (Sulphated Ash, Phosphorus & Sulphur) technology 100% fully synthetic heavy duty diesel engine oil for engines to use Green Diesel (Ultra Low Sulfur diesel). Moreover it holds a unique technology that meets the requirements of full SAPS lubricants. It Combines global heavy-duty diesel requirements of all European ACEA and API claims in a single, high-performance lubricant. Product is developed to comply low emission norms EURO I, up to EURO VI and extended drain intervals. It is one of the highest TBN based low SAPS products in the market providing maximum cost saving as well as meeting long drain requirements.

Applications

- Heavy duty Diesel Vehicles fitted with state-of-the art exhaust after treatment system such as particulate filters, EGR and catalytic converters to meet low emission requirements EURO V & VI
- Compatible with other engine oils but recommended not to mix in order to enhance the life of exhaust after treatment devices
- Mixed fleet capabilities and can accommodate higher fuel sulphur levels
- Long Drain capability

Performance Standards

VULCAN GREEN 10W-40 meets and exceeds the following International specifications

API	CJ-4	Caterpillar	ECF-3
ACEA	E4,E6,E7,E9	MAN	M3477, M3575, M3271-1
Volvo	VDS-4	Renault Trucks	RLD-3
MB Approval	228.51	MTU	Type 3.1
Scania	Low Ash	MACK	EO-O Premium Plus
Cummins	CES 20081	Deutz	DQC IV-10 LA



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

VULCAN GREEN 10W-40 provides:

- Protects and enhances Exhaust After treatment devices such as Three Way Catalyst (TWC), Diesel particulate filters (DPF),etc. Increases the catalyst life because of low phosphorus level
- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improves engine life
- Outstanding fuel economy and increased oil drain interval and reduce oil top-up
- Excellent protection against wear
- Excellent low temperature easy starting, so termed as all weather oil

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8575
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	87.09
mm ² /s at 100°C	13.74
Pour Point,°C, ASTM D97	-39
Flash Point,°C (COC), ASTM D92	232
CCS Viscosity, mPa.s, ASTM D 5293	5890@-25°C
TBN, mg KOH/g, ASTM D 2896	12.75
Product code	200038

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 880X

Product Description

ENOC VULCAN 880X 15W-40 is a technologically advanced heavy duty diesel engine oil for low emission engines operating on high temperature using low sulfur fuel and fitted with exhaust after treatment devices such as Three Way Catalyst (TWC), Diesel particulate filters (DPF), Selective Catalyst Reduction (SCR), Diesel Particulates & Nitrous-oxide Reduction (DPNR), Exhaust Gas Recirculation (EGR). Product is developed to comply low emission norms EURO I, II, III, IV & V and extended drain intervals. It is available in SAE 15W-40 viscosity grade to control engine piston deposits.

Applications

- Heavy duty Diesel Vehicles fitted with state-of-the art exhaust after treatment system such as particulate filters, EGR and catalytic converters to meet low emission requirements EURO IV & V
- Compatible with other engine oils but recommended not to mix in order to enhance the life of Exhaust After Treatment devices
- Long Drain capability
- Excellent soot dispersancy, piston deposits and oxidation control

Performance Standards

VULCAN 880X 15W-40 meets and exceeds the following International specifications:

API	CJ4/SN	MTU	Type 2.1
MAN	M 3575	Renault	Trucks RDL-3
Caterpillar	ECF -3	CUMMINS	20081
ACEA	E9	Volvo	VDS-4
MB - Approval	228.31	DDC	93K218



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

VULCAN 880X 15W-40 provides:

- Protects and enhances Exhaust After treatment Devices such as Three Way Catalyst (TWC), Diesel particulate filters (DPF), Selective Catalyst Reduction (SCR), Diesel Particulates & Nitrous-oxide Reduction (DPNR), Exhaust Gas Recirculation (EGR) thus suitable for low emission engines
- Increases the catalyst life because of low phosphorus level
- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improves engine life
- Outstanding fuel economy and increased oil drain interval and reduce oil top-up
- Excellent protection against wear
- Excellent low temperature easy starting, so termed as all weather oil

SAE Grade	15W-40
Density at 15°C, kg/L, ASTM D4052	0.8758
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	111.0
mm ² /s at 100°C	14.75
Pour Point,°C, ASTM D97	-30
Flash Point,°C (COC), ASTM D92	236
CCS Viscosity, mPa.s, ASTM D 5293	6386 @-20°C
TBN, mg KOH/g, ASTM D 2896	7.6
Product code	200040

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 880X

Product Description

ENOC VULCAN 880X 20W-50 is a technologically advanced heavy-duty diesel engine oil for low emission engines operating on high temperature using low sulphur fuel and fitted with exhaust after treatment devices such as Three-Way Catalyst (TWC), Diesel particulate filters (DPF), Selective Catalyst Reduction (SCR), Diesel Particulates & Nitrous-oxide Reduction (DPNR), Exhaust Gas Recirculation (EGR)

Applications

- Heavy duty Diesel Vehicles fitted with state-of-the art exhaust after treatment system such as particulate filters, EGR and catalytic converters to meet low emission requirements EURO IV & V
- Compatible with other engine oils but recommended not to mix to enhance the life of exhaust after treatment devices
- Long Drain capability
- Excellent soot dispersancy, piston deposits and oxidation control

Performance Standards

VULCAN 880X 20W-50 meets and exceeds the following International specifications:

API CJ4

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

VULCAN 880X 20W-50 provides:

- Protects and enhances Exhaust After treatment Devices such as Three-Way Catalyst (TWC), Diesel particulate filters (DPF), Selective Catalyst Reduction (SCR), Diesel Particulates & Nitrous-oxide Reduction (DPNR), Exhaust Gas Recirculation (EGR) thus suitable for low emission engines
- Increases the catalyst life because of low phosphorus level
- Superior resistance to oil thickening/sludge formation, outstanding deposit control and improves engine life
- Helps in oil consumption control



SAE Grade	20W-50
Density at 15°C, g/ml.	0.8852
Kinematic Viscosity mm ² /s @ 40 °C	170.0
Kinematic Viscosity mm ² /s @100 °C	18.8
Viscosity Index	125
TBN mg KOH/g	7.7
Flash Point COC,°C	240
Pour Point,°C	-27
Product Code	200086

Technical Data*

ENOC VULCAN 770 SLD

Product Description

ENOC VULCAN 770 SLD 10W-40 is a fully synthetic super high performance long drain synthetic diesel engine oil developed for modern low emission European trucks meeting the EURO IV emission standards. This lubricant has been developed to exceed Mercedes Benz 228.5 and Volvo VDS- 3 and other long oil drain specifications. VULCAN 770 SLD offers the ultimate performance for fleet operators wanting long engine life in modern long haul low emission diesel trucks operating on extended long drain periods.

Applications

- European engines used in long drain, high mileage applications
- Modern low emission high performance automotive diesel engines – EURO IV
- All vehicle makes used in mixed vehicle transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 770 SLD 10W-40 meets and exceeds the following OEM and International Specifications:

API	CI-4	MTU	Type 3.0
ACEA	E4/E7	Deutz	DQC IV-10
MB-Approval	228.5	Volvo	VDS-3
MAN	M3277, M3377	Renault	RLD-2
MACK	EO-N	JASO	DH-1
Caterpillar	ECF-2	Cummins	CES 20078



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 770 SLD 10W-40 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities
- Easy starting due to its high fluidity

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8575
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	96.56
mm ² /s at 100°C	14.55
Pour Point, °C, ASTM D97	-36
Flash Point, °C (COC), ASTM D92	234
CCS Viscosity, mPa.s, ASTM D 5293	6012 @-25°C
TBN, mg KOH/g, ASTM D 2896	13
Product code	200031

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 760X SYNTECH



Product Description

ENOC VULCAN 760X SYNTECH 10W-40 is a synthetic blend, extra high performance diesel engine oil developed to provide outstanding lubrication to modern high output diesel engines operating in heavy duty severe on and off-highway applications. This lubricant has been manufactured with highest performance base oils which provide excellent low temperature fluidity, high temperature viscosity retention, volatility control and fuel economy improvement. These base oils are enhanced with an advanced performance additive package, which provides a high level of protection to the entire engine components. VULCAN 760X SYNTECH is designed to provide long oil drain service intervals in modern diesel engines.

Applications

- Natural aspirated and turbo-charged diesel powered engines
- OEM's engines used in long drain, high mileage applications
- All vehicle makes used in mixed vehicle transport with extended oil drain capabilities
- Off-highway industries including; construction, mining, quarrying and agriculture
- Diesel generator sets

Performance Standards

VULCAN 760X SYNTECH 10W-40 meets and exceeds the following OEM and International Specifications:

API	CI-4	MTU	Type 3.0	
ACEA	E4/E7	Cummins CES	20078	
MB-Approval	228.5	Volvo	VDS-3	
MAN	M3277	Renault	RVI RLD-2	

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 760X SYNTECH 10W-40 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Suitable for Diesel engine in Heavy Equipments, trucks, Buses and Passenger cars
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities
- Easy starting due to its high fluidity

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8655
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	92.58
mm ² /s at 100°C	14.10
Pour Point, °C, ASTM D97	-36
Flash Point, °C (COC), ASTM D92	232
CCS Viscosity, mPa.s, ASTM D 5293	6386 @-25°C
TBN, mg KOH/gASTM D 2896	13
Product code	200041

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 800X



Product Description

ENOC VULCAN 800X 10W-40 is a fully synthetic technologically advanced heavy duty diesel engine oil meeting API CI-4 PLUS specifications. It is formulated with "Power Protect" formula providing outstanding engine protection and helps maintain power over a longer drain interval as demanded by various OEMs.

Leading Features

- Meets the highest API standards for high Sulphur fuels, API CI-4 PLUS standards along with latest global OEM specifications making it a truly multi-fleet product
- Delivers class leading shear stability performance ensuring the viscosity of the product is sustained over drain period
- Outstanding deposit control due to its advanced soot control and detergent formula
- One of best in class wear control that also helps in "Power Protection" over long drain periods in harsh conditions



Applications

It is recommended for use in all modern Diesel Engine vehicles fitted with exhaust gas recirculation to meet lower emission norms (without after treatment devices). However, this lubricant can be used in vehicles of older generation as well.

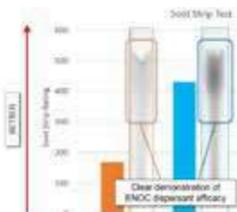
- Suitable for heavy and light duty diesel commercial vehicles operating in harsh and variable fuel quality environment
- Suitable for Agricultural, Offhighway Construction & Mining vehicles requiring high quality diesel engine oil

Performance Standards

VULCAN 800X 10W-40 meets the following International specifications:

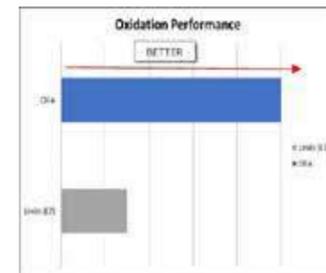
API	CI-4 PLUS/SL	MTU	Type 2.0
MAN	3275	Renault Trucks	RDL-2
CAT	ECF -2	CUMMINS	20078
ACEA	E7	Volvo	VDS-3
MB	228.3	JASO	DH-1

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals. ENOC VULCAN 800X SAE 10W-40 is developed with "Power Protect" formula that provides



1. Outstanding Soot Control

Tests conducted on special Soot Strip Test that evaluates oil's soot handling abilities clearly shows ENOC Vulcan 800X SAE 10W-40 to have much better results than market general technologies. The end benefit is better deposit control in engines as well as better engine protection due to advanced soot control.



2. Outstanding Oxidation Control

Oil Oxidation Control is very important in today's high powered efficient diesel engines that run HOT! ENOC Vulcan 800X SAE10W-40 ensures oil oxidation is well controlled thereby ensuring smooth engine running in all weather conditions.



ENOC Vulcan 800X SAE 10W-40
End of test results (Clean)



Market General CI-4 10W-40
End of test results (Full of Deposits)

3. Oxidation Induced deposit test:

Vulcan 800X SAE 10W-40 was tested versus Market General CI-4 10W-40 in a severe oxidation test that also gives indication of oxidative deposits left after test. As we can see ENOC Vulcan 800X SAE 10W-40 shows significantly better performance indicating its ability to work for longer periods in arduing field conditions. Clean engines retain power for longer.



4. Wear Performance:

Vulcan 800X SAE 10W-40 apart from meeting stringent Industry body & OEM requirements also was tested in special wear test against market general CI-4. The results indicates abundant antiwear reserve with ENOC Vulcan 800X SAE 10W-40 making sure engine is protected in severe conditions. Durable engines retain power for longer.

ENOC VULCAN 800X 10W-40 key points of differentiation:

- Meets the highest API standards recommended for high sulphur fuel applications- API CI-4 PLUS as well as number of OEM requirements making it truly suitable for multi-fleet applications
- Formulated with advanced "Power Protect" formula that helps in retaining power of diesel engines
- Suitable for long drain applications as per OEM prescribed limits
- Retains viscosity in extreme conditions of heat and shear enabling durable engine performance

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8532
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	92.5
mm ² /s at 100°C	14.7
Pour Point, °C, ASTM D97	-36
Flash Point, °C (COC), ASTM D92	232
CCS Viscosity, mPa.s, ASTM D 5293	6632 @ -25°C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200079

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

Technical Data*

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 800X



Product Description

ENOC VULCAN 800X SAE 15W-40 is a technologically advanced heavy duty diesel engine oil meeting API CI-4 Plus specifications. It is formulated with "Power Protect" formula providing outstanding engine protection and helps maintain power over a longer drain interval as demanded by various OEMs.

Leading Features

- Meets the highest API standards for high sulphur fuels, API CI-4 Plus standards alongwith latest global OEM specifications making it truly multi-fleet product
- Delivers class leading shear stability performance ensuring viscosity of product is sustained over drain period
- Outstanding deposit control due to its advanced soot control and detergent formula
- One of best in class wear control that also helps in "Power Protection" over long drain periods in harsh conditions.



Applications

It is recommended for use in all modern Diesel Engine vehicles fitted with exhaust gas recirculation to meet lower emission norms (without after treatment devices). However, this lubricant can be used in vehicles of older generation as well.

- Suitable for heavy and light duty diesel commercial vehicles operating in harsh and variable fuel quality environment
- Suitable for Agricultural, Offhighway Construction & Mining vehicles requiring high quality diesel engine oil

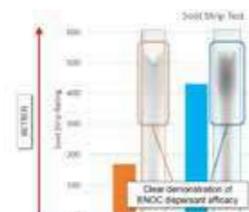
Performance Standards

ENOC VULCAN 800X SAE 15W-40 meets & exceeds the following International

API	CI-4 PLUS/SL	MTU	Type 2.0
MAN	3275	Renault Trucks	RDL-2
CAT	ECF -2	CUMMINS	20078
ACEA	E7	Volvo	VDS-3
MB	228.3	JASO	DH-1

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

ENOC VULCAN 800X SAE 15W-40 is developed with "Power Protect" formula that provides



1. Outstanding Soot Control

Tests conducted on special Soot Strip Test that evaluates oil's soot handling abilities clearly shows ENOC Vulcan 800X SAE 15W-40 to have much better results than market general technologies. The end benefit is better deposit control in engines as well as better engine protection due to advanced soot control.



2. Outstanding Oxidation Control

Oil Oxidation Control is very important in today's high powered efficient diesel engines that run HOT! ENOC Vulcan 800X SAE15W-40 ensures oil oxidation is well controlled thereby ensuring smooth engine running in all weather conditions.



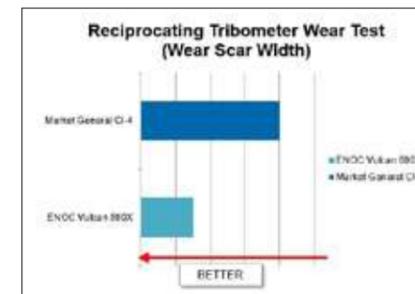
ENOC Vulcan 800X SAE 15W-40
End of test results (Clean)



Market General CI-4 15W-40
End of test results (Full of Deposits)

3. Oxidation Induced deposit test:

Vulcan 800X SAE 15W-40 was tested versus Market General CI-4 15W-40 in a severe oxidation test that also gives indication of oxidative deposits left after test. As we can see ENOC Vulcan 800X SAE 15W-40 shows significantly better performance indicating its ability to work for longer periods in arduing field conditions. Clean engines retain power for longer.



4. Wear Performance:

Vulcan 800X SAE 15W-40 apart from meeting stringent Industry body & OEM requirements also was tested in special wear test against market general CI-4. The results indicates abundant antiwear reserve with ENOC Vulcan 800X SAE 15W-40 making sure engine is protected in severe conditions. Durable engines retain power for longer.

ENOC VULCAN 800X 15W-40 key points of differentiation:

- Meets the highest API standards recommended for high sulphur fuel applications- API CI-4 PLUS as well as number of OEM requirements making it truly suitable for multi-fleet applications
- Formulated with advanced "Power Protect" formula that helps in retaining power of diesel engines
- Suitable for long drain applications as per OEM prescribed limits
- Retains viscosity in extreme conditions of heat and shear enabling durable engine performance

SAE Grade	15W-40
Density kg/m ³	0.8672
Kinematic Viscosity mm ² /s @ 40°C	111
Kinematic Viscosity mm ² /s @ 100°C	14.6
Viscosity Index	134
TBN mg KOH/g	10.5
Flash Point COC	230
Pour Point	-39
Product Code	200073

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

Technical Data*

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 800X

Product Description

ENOC VULCAN 800X SAE 20W-50 is a High Performance diesel engine oil meeting the latest API CI-4 Plus standard available in a high viscosity grade. VULCAN 800X SAE 20W-50 offers the excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting Euro 4 and for extended drain periods. The product is manufactured with mineral base oils and imparted with chemical additives qualifying API CI-4 Plus

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - Euro 4
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance standards

VULCAN 800X SAE 20W-50 has been formulated from additive technology that meets the following International Specifications:

API CI-4 Plus

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 800X 20W-50 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities



SAE Grade	20W- 50
Kinematic Viscosity mm ² /s @ 40°C	173
mm ² /s @100°C	18.9
Viscosity Index	124
Flash Point,	242
Pour Point,	-30
BN No. ASTM D2896	10.7
Product Code	200074

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 770X SUPER

Product Description

ENOC VULCAN 770X SUPER 15W-40 is blended with advanced technology additive packs and new generation Hydro finished base oils. A Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long life oil meeting Mercedes Benz 228.3 and Volvo VDS-3 long oil drain specifications. ENOC VULCAN 770X SUPER 15W-40 offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO IV and for extended drain periods.

EURO IV diesel engines without DPF & aftertreatment devices. For those engines fitted with aftertreatment devices, ENOC recommends ENOC Vulcan Green 10W-40.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - upto EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets requiring API CI-4 oils

Performance Standards

VULCAN 770X SUPER 15W-40 exceeds the specifications of:

API	CI-4/SL	Renault	RVI RLD/ RLD-2
ACEA	E7	Cummins	20076/ 20077 and 20078
MB Approval	228.3	MAN	M 3275
Volvo	VDS-3	Caterpillar	ECF-2
MACK	EO-N	Detroit Diesel	DDC 93K215
MTU	Type 2.0	DEUTZ	DQC III-10
Global	DHD- 1		



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 770X SUPER 15W-40 formulated with hydro finished base oils & advanced additives provides:

- Excellent engine cleanliness through advanced soot handling technology
- Superior resistance to oil thickening/ sludge formations, outstanding deposit control and improves engine life
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities

SAE Grade	15W-40
Density at 15°C, kg/L, ASTM D4052	0.8780
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	104.2
mm ² /s at 100°C	14.56
Pour Point,°C, ASTM D97	-33
Flash Point,°C (COC), ASTM D92	234
CCS Viscosity, mPa.s, ASTM D 5293	6418 @-20°C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200062

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 770X SUPER

Product Description

ENOC VULCAN 770X SUPER 20W-50 is blended with advanced technology additive packs and new generation Hydro finished base oils. A Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long life oil meeting Mercedes Benz 228.3 and Volvo VDS-3 long oil drain specifications. ENOC VULCAN 770X SUPER 20W-50 offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO IV and for extended drain periods.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - upto EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets requiring API CI-4 oils

Performance Standards

VULCAN 770X SUPER 20W-50 exceeds the specifications of:

API	CI-4/SL
ACEA	E7

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 770X SUPER 20W-50 formulated with hydro finished base oils & advanced additives provides:

- Excellent engine cleanliness through advanced soot handling technology
- Superior resistance to oil thickening/ sludge formations, outstanding deposit control and improves engine life
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities



SAE Grade	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8826
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	173.6
mm ² /s at 100°C	18.85
Pour Point, °C, ASTM D97	-30
Flash Point, °C (COC), ASTM D92	240
CCS Viscosity, mPa.s, ASTM D 5293	8732 @-15°C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200063

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 770X

Product Description

ENOC VULCAN 770X 10W-30 is a Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long-life oil especially for pick up medium duty vehicles requiring long oil drain intervals. VULCAN 770X offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks & pickups operating with low emission engine standards meeting EURO IV and for extended drain periods. The product is manufactured with mineral base API approved base oils and imparted with chemical additives qualifying API CI-4/ SL.

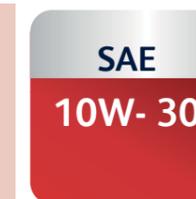
Applications

- Mixed fleets of automotive pick up diesel truck manufacturers
- Modern high performance diesel engine for pick-up trucks, SUV, and MPV with Common Rail injection and turbocharger.
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 770X 10W-30 meets and exceeds the following OEM and International Specifications:

API	CI-4/SL	Renault	RVI RLD/RLD-2
ACEA	E7	Cummins	20076/20077 and 20078
Mercedes Benz	228.3	MAN M	3275
Volvo	VDS-3	Caterpillar	ECF- 2
MACK	EO-N	MTU	Type 2
Global	DHD-1	Deutz	DQC III-10
Detroit Diesel	DDC 93K215		



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals

Benefits

VULCAN 770X 10W-30 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities

SAE Grade	10W-30
Density at 15°C, kg/L, ASTM D4052	0.8680
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	72.5
mm ² /s at 100°C	11.45
Pour Point, °C, ASTM D97	-36
Flash Point, °C (COC), ASTM D92	224
CCS Viscosity, mPa.s, ASTM D 5293	6426 @-25°C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200075

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 770X

Product Description

ENOC VULCAN 770X 15W-40 is a Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long life oil meeting Mercedes Benz 228.3 and Volvo VDS-3 long oil drain specifications. VULCAN 770X offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO IV and for extended drain periods. The product is manufactured with mineral base API approved base oils and imparted with chemical additives qualifying API CI-4/ SL.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 770X 15W-40 meets and exceeds the following OEM and International Specifications:

API	CI-4/SL	Renault	RVI RLD/RLD-2
ACEA	E7	Cummins	20076/20077 and 20078
Mercedes Benz	228.3	MAN	M 3275
Volvo	VDS-3	Caterpillar	ECF- 2
MACK	EO-N	MTU	Type 2
Global	DHD-1	Deutz	DQC III-10
Detroit Diesel	DDC 93K215		



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals

Benefits

VULCAN 770X 15W40- provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities and operational cost

SAE Grade	15W-40
Density at 15°C, kg/L, ASTM D4052	0.8852
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	105.1
mm ² /s at 100°C	14.42
Pour Point, °C, ASTM D97	-30
Flash Point, °C (COC), ASTM D92	230
CCS Viscosity, mPa.s, ASTM D 5293	6678 @-20 °C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200024

Technical Data*

ENOC VULCAN 770X



Product Description

EENOC VULCAN 770X 20W-50 is a Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long life oil. VULCAN 770X offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO IV and for extended drain periods. The product is manufactured with mineral base API approved base oils and imparted with chemical additives qualifying API CI-4/ SL.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 770X 20W-50 meets and exceeds the following OEM and International Specifications:

API	CI-4/SL
ACEA	E7

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 770X 20W-50 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities



SAE Grade	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8876
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	176.3
mm ² /s at 100°C	18.95
Pour Point, °C, ASTM D97	-24
Flash Point, °C (COC), ASTM D92	236
CCS Viscosity, mPa.s, ASTM D 5293	8980 @-15 °C
TBN, mg KOH/g, ASTM D 2896	10.5
Product code	200039

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 765X

Product Description

ENOC VULCAN 765X is a Super High Performance long drain diesel engine oil meeting the latest API CI-4 standard available in a shear stable viscosity grade 10W-40 and 15W-40. It offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO IV and for extended drain periods. The product is manufactured with highly refined mineral base API approved base oils and chemical additives qualifying API CI-4.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 765X Meet the performance requirements of:

API CI-4.

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 765X provides:

- "Triple E" advantage.
- Excellent engine protection due to higher oil film strength- Peace of mind against breakdown
- Efficient engine cleanliness ensuring smooth engine running with less downtime
- Engineered to go extra kilometers with less lubricant consumption, less downtime, less maintenance and repair costs



SAE Grade	10W- 40	15W- 40
Kinematic Viscosity mm ² /s @ 400C	93.1	109
mm ² /s @100°C	13.95	14
Viscosity Index	153	133
Flash Point, COC, °C	224	228
Pour Point, °C	-36	-30
BN No. ASTM D 2896	10.5	10.3
Product Code	200088	200087

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 700X SUPER

Product Description

ENOC VULCAN 700X SUPER 15W-40 is blended with advanced technology additive packs and new generation hydrofinished base oils. A High Performance diesel engine oil exceeding the requirements of API CH-4 standard is available in a shear stable viscosity grade.

ENOC VULCAN 700X SUPER 15W-40 offers the excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting Euro 4* and for extended drain periods.

*: Euro 4 diesel engines without DPF & aftertreatment device

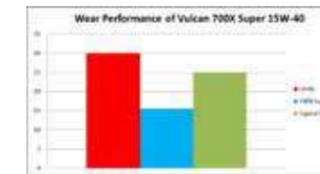
Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - upto EURO IV
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets requiring API CH- 4 oils

Performance Standards

ENOC VULCAN 700X SUPER exceeds the specifications of:

API	CH-4	Renault	RVI RLD/RLD-2
ACEA	E7	Cummins	20076
MB-Approval	228.3	MAN	M 3275
Volvo	VDS-3	CAT	ECF-1a
MACK	EO-N	MTU	Type 2.0



Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 700X SUPER is formulated with hydro finished base oils & advanced additives provides:

- Excellent engine cleanliness through advanced clean guard technology
- Superior resistance to oil thickening/ sludge formations, outstanding deposit control and improves engine life
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals

SAE Grade	15W-40
Kinematic Viscosity mm ² /s at 40°C	108.3
mm ² /s at 100°C	14.6
Viscosity Index	138
Flash Point, COC, °C	232
Pour Point, °C	-30
BN NO. ASTM D2896	9.5
Product Code	200064

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 700X

Product Description

ENOC VULCAN 700X 15W-40 is a High Performance long drain diesel engine oil meeting API CH-4 standard available in a shear stable viscosity grade. This lubricant has been developed as a long life oil meeting Mercedes Benz 228.3 and Volvo VDS-2 long oil drain specifications. VULCAN 700X offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO III and for extended drain periods.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO III
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 700X 15W-40 meets and exceeds the following OEM and International Specifications:

API	CH-4	Renault	RVI RLD/RLD-2	SAE 15W-40
ACEA	E7	Cummins	20076	
MB-Approval	228.3	MAN	M 3275	
Volvo	VDS-3	CAT	ECF-1a	
MACK	EO-N	MTU	Type 2.0	

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 700X 15W-40 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities

SAE Grade	15W-40	Technical Data*
Density at 15°C, kg/L, ASTM D4052	0.8767	
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	108.3	
mm ² /s at 100°C	14.35	
Pour Point, °C, ASTM D97	-30	
Flash Point, °C (COC), ASTM D92	228	
CCS Viscosity, mPa.s, ASTM D 5293	6566 @-20°C	
TBN, mg KOH/g, ASTM D 2896	9.5	
Product code	200036	

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 700X

Product Description

ENOC VULCAN 700X 20W-50 is a High Performance long drain diesel engine oil meeting API CH-4 standard available in a shear stable viscosity grade. VULCAN 700X offers excellent performance for fleet operators wanting long engine life in modern long haul diesel trucks operating with low emission engine standards meeting EURO III and for extended drain periods.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO III
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 700X 20W-50 meets and exceeds the following OEM and International Specifications:

API	CH-4	SAE 20W-50
Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.		

Benefits

VULCAN 700X 20W-50 provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities

SAE Grade	20W-50	Technical Data*
Density at 15°C, kg/L, ASTM D4052	0.8842	
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	175	
mm ² /s at 100°C	18.95	
Pour Point, °C, ASTM D97	-27	
Flash Point, °C (COC), ASTM D92	238	
CCS Viscosity, mPa.s, ASTM D 5293	8872 @-15°C	
TBN, mg KOH/g, ASTM D 2896	9.5	
Product code	200051	

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 700X ULTRA

Product Description

ENOC VULCAN 700X ULTRA is a diesel engine oil meeting API CH-4 standard available in a shear stable viscosity grade. VULCAN 700X ULTRA offers excellent performance for fleet operators wanting long engine life in long haul diesel trucks operating with engine standards meeting EURO II & EURO III and for extended drain periods, it is available in SAE 15W-40 and SAE 20W-50 viscosity grades.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Modern low emission high performance automotive diesel engines - EURO II & EURO III
- All vehicle makes used in long distance transport with extended oil drain capabilities
- Heavy duty Mobile Plant vehicles
- Diesel generator sets

Performance Standards

VULCAN 700X ULTRA meets and exceeds the following OEM and International Specifications:

API CH-4

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 700X ULTRA provides:

- Excellent engine cleanliness through advanced soot handling technology
- Mixed fleet capabilities
- Exceptional low engine wear
- Trouble free operation between long drain service intervals
- Reduced maintenance capabilities



SAE Grade	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8779	0.8856
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	109.5	173.6
mm ² /s at 100°C	14.28	18.85
Pour Point, °C, ASTM D97	-27	-24
Flash Point, °C (COC), ASTM D92	224	232
CCS Viscosity, mPa.s, ASTM D 5293	6735 @-20°C	9082 @-15°C
TBN, mg KOH/g, ASTM D 2896	9.5	9.5
Product code	200071	200072

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 705X



Product Description

ENOC VULCAN 705X 15W-40 is a premium quality diesel engine oil recommended for both naturally aspirated and turbocharged diesel engines operating under stressful conditions. This high-quality product is formulated with advanced components easily exceeding the requirements of API CH-4 standards.

ENOC VULCAN 705X 15W-40 is specially engineered with "Moliteck" formula providing exceptional protection against engine wear and corrosion in multiple applications.



Applications

- Mixed fleets of automotive diesel trucks
- Modern low emission high performance automotive diesel engines - upto EURO IV
- All vehicle makes used in long distance transport requiring protection on go
- Heavy duty Mobile Plant vehicles
- Diesel generator sets requiring API CH-4 oils



Performance Standards

VULCAN 705X 15W-40 exceeds the specifications of:

API CH-4

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 705X 15W-40 formulated with advanced "Moliteck" formula provides:

- One of class leading engine wear protection that helps reliability & durability of diesel engines in service
- Exceeding the highest API limits for Roller follower wear test and Mack Merit rating that will ensure best in class protection against these important parameters
- Improved deposit and corrosion protection by resisting thermal breakdown of the oil and by neutralizing harmful acids
- Trouble free operation between drain service intervals

SAE Grade	15W-40
Density at 15°C, kg/L, ASTM D4052	0.8710
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	103.5
mm ² /s at 100°C	13.9
Pour Point, °C, ASTM D97	-27
Flash Point, °C (COC), ASTM D92	228
CCS Viscosity, mPa.s, ASTM D 5293	6720 @-20°C
TBN, mg KOH/g, ASTM D 2896	9.5
Product code	200089

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 660X

Product Description

ENOC VULCAN 660X are superior quality diesel engine oils available in SAE 15W-40 & SAE 20W-50 viscosity grades. ENOC Vulcan 660X provides proven engine protection of diesel engines operating in both on and off-highway service applications. ENOC Vulcan 660X are recommended by ENOC for use in a wide range of heavy-duty applications and operating environments found in the trucking, mining, construction, quarrying, and agricultural industries.

Applications

- Mixed fleets of automotive diesel truck manufacturers
- Especially tailored for working in equipments running on low Sulphur fuel
- Off-highway vehicles and plant equipment
- Diesel generator sets
- All vehicle makes used in long distance transport

Performance Standards

VULCAN 660X meets and exceeds the following OEM and International Specifications:

API CG-4

Always follow equipment manufacturer's recommendations for required lubricant performance levels.

Benefits

VULCAN 660X provides:

- Excellent engine cleanliness
- Mixed fleet capabilities
- Trouble free operation between service intervals
- Reduced maintenance capabilities



SAE Grade	15W-40	20W-50
Kinematic Viscosity, ASTM D445, mm ² /s		
mm ² /s @ 40°C	110.5	168.0
mm ² /s @ 100°C	14.75	19.10
Viscosity Index, ASTM D2270	138	129
Flash Point, COC, ASTM D92, °C	226	238
Pour Point, ASTM D97, °C	-30	-27
BN No., ASTM D2896, mg KOH/g	8.5	8.5
Sulphated Ash, ASTM D874, m %	1.16	1.16
Product Code	200008	200021

Technical Data*

ENOC VULCAN 550X

Product Description

ENOC VULCAN 550X is a high performance multi-grade engine oil for use in heavy duty diesel engines. It is available in SAE 15W-40, 20W-50 viscosity grade and has been developed as an API service classification CF-4 oil for mixed fleet operations where European, US and Japanese heavy and light duty trucks are used. The total base number (TBN) provides a high alkalinity reserve necessary to give excellent engine protection for long engine life. It is available in SAE 15W-40 and SAE 20W-50 viscosity grades.

Applications

- High speed diesel engines in offshore marine service (e.g. ferries, fishing boats etc..)
- Heavy earth moving equipment used in the construction industry
- Long distance coach operations
- Mixed fleets of diesel engines
- Agricultural tractors
- Stationary power generation units using high speed diesel engines
- Extended oil drain capabilities

Performance Standards

VULCAN 550X meets and exceeds the following OEM and International specifications:

API CF-4

Always follow the equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 550X provides:

- Extended oil drain intervals
- Minimal engine deposits
- Reduces fleet maintenance costs
- Preserves full power and performance
- Excellent control of oxidation and oil thickening
- Neutralization of corrosive acid



SAE Grade	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8756	0.8878
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	110	164.2
mm ² /s at 100°C	14.75	18.35
Pour Point, °C, ASTM D97	-27	-24
Flash Point, °C (COC), ASTM D92	230	240
CCS Viscosity, mPa.s, ASTM D 5293	6762 @ -20°C	9062 @ -15°C
Product code	200010	200033

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN 330

Product Description

ENOC VULCAN 330 SAE 25W-50 is high quality lubricant developed for the lubrication of heavy goods vehicles used in general transport, earthmoving, quarrying and construction equipment. It is designed specifically for use in naturally aspirated and light turbocharged diesel engines. It is formulated to have excellent resistance to oxidation and wide temperature operating capabilities.

Applications

- Heavy goods vehicles in general transport.
- Construction and heavy earthmoving equipment.
- SAE 25W50- grade can be used in certain gear applications. Engine oils used in mobile air compressors.
- Light trucks with diesel or gasoline engines. Older model passenger cars.
- Certain transmissions requirements for earthmoving equipment.
- Diesel generators

Performance Standards

VULCAN 330 SAE 25W-50 meets the following OEM and International specifications:

API	CI-4
-----	------

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 330 SAE 25W-50 provides:

- An economical product with good all round performance
- Suitability for use in light turbocharged engines
- Excellent resistance to oxidation
- Excellent TBN retention to work in variable fuel quality environment
- Good resistance to corrosion



SAE Grade	25W-50
Kinematic Viscosity mm ² /s @ 40°C	206.7
mm ² /s @ 100°C	21.2
Viscosity Index	120
Flash Point, COC, °C	2525
Pour Point, °C	-18
BN No, ASTM D2896	11.01
CCS @ -10°C	10800
Product Code	200103

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN 330

Product Description

ENOC VULCAN 330 is a range of monograde engine oils developed for the lubrication of heavy goods vehicles used in general transport, earthmoving, quarrying and construction equipment as well as medium speed trunk piston engines burning distillate fuels with sulphur content up to 1.0%. It is designed specifically for use in naturally aspirated and light turbocharged diesel engines. They are formulated to have excellent resistance oxidation and viscosity increase over a long period of service.

Applications

- Heavy goods vehicles in general transport
- Construction and heavy earthmoving equipment
- The SAE 50 grade can be used in certain gear applications
- The SAE 10W grade can be used for certain hydraulic systems where OEM requires engine oil with an appropriate grade for these applications
- Engine oils used in mobile air compressors
- Light trucks with diesel or gasoline engines
- Older model passenger cars
- Certain transmissions requirements for earthmoving equipment

Performance Standards

VULCAN 330 meets and exceeds the following OEM and International specifications:

API	CF
-----	----

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN 330 provides:

- An economical product with good all round performance
- Suitability for use in light turbocharged engines
- Excellent resistance to oxidation
- Good engine cleanliness with special detergent/dispersant properties
- Good resistance to corrosion



SAE Grade	10W	30	40	50
Density at 15°C, kg/L, ASTM D4052	0.8802	0.8964	0.8996	0.9058
Viscosity, Kinematic, ASTM D 445 mm ² /s @ 40°C	35.13	98.59	145.6	256.4
mm ² /s @ 100°C	5.87	11.24	14.75	21.26
Pour Point, °C, ASTM D97	-33	-18	-15	-9
Flash Point, °C (COC), ASTM D92	222	240	246	262
Product code	200004	200022	200005	200011

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VULCAN SUPER DUTY

Product Description

ENOC VULCAN SUPER DUTY 40 is fully optimized diesel engine oil developed for the lubrication of heavy goods vehicles used in general transport, earthmoving, quarrying and construction equipment as well as stationary diesel engines requiring API CF quality engine oil. It is designed specifically for use in naturally aspirated and light turbocharged diesel engines. Formulated for moderate to severe service depending on the diesel fuel sulphur level and oil change frequency.

Applications

- Heavy goods vehicles in general transport
- Construction and heavy earthmoving equipment
- Engine oils used in mobile air compressors
- Light trucks with diesel or gasoline engines
- Older model passenger cars
- Certain transmissions for earthmoving equipment

Performance Standards

VULCAN SUPER DUTY 40 meets and exceeds the following International specifications:

API CF

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.



Benefits

VULCAN SUPER DUTY 40 provides:

- An economical product with good all round performance
- Suitability for use in light turbocharging
- Excellent resistance to oxidation
- Good engine cleanliness with special detergent/dispersant properties
- Good resistance to corrosion

SAE Grade	40
Density at 15°C, kg/L, ASTM D4052	0.8854
Kinematic Viscosity mm ² /s @ 40°C	135.0
mm ² /s @100°C	13.80
Viscosity Index	98
Flash Point, COC,°C	250
Pour Point,°C	-15
BN No. ASTM D2896	8.5
Product code	200067

Technical Data*

ENOC VULCAN SUPER DUTY

Product Description

ENOC VULCAN SUPER DUTY CF 50 diesel engine oil developed for the lubrication of heavy goods vehicles used in general transport, earthmoving, quarrying and construction equipment as well as stationary diesel engines requiring API CF quality engine oil. It is designed specifically for use in naturally aspirated and light turbocharged diesel engines. Formulated for moderate to severe service depending on the diesel fuel sulphur level and oil change frequency.

Applications

- Heavy goods vehicles in general transport
- Construction and heavy earthmoving equipment
- Engine oils used in mobile air compressors
- Light trucks with diesel or gasoline engines
- Older model passenger cars
- Certain transmissions for earthmoving equipment

Performance Standards

VULCAN SUPER DUTY CF 50 meets and exceeds the following International specifications:

API CF/SF

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.



Benefits

VULCAN SUPER DUTY CF 50 provides:

- An economical product with good all round performance
- Suitability for use in light turbocharging
- Excellent resistance to oxidation
- Good engine cleanliness with special detergent/dispersant properties
- Good resistance to corrosion

SAE Grade	50
Density at 15°C, kg/L, ASTM D4052	0.8952
Viscosity, Kinematic, ASTM D 445	
KV at 40°C	201
KV at 100°C	18
Pour Point,°C, ASTM D97	264
Flash Point,°C (COC), ASTM D92	-15
mg KOH/g,ASTM D 2896	11
Product code	200037

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN SUPER DUTY CD

Product Description

ENOC VULCAN SUPER DUTY is a range of diesel engine oils developed for the lubrication of heavy goods vehicles used in general transport, earthmoving, quarrying and construction equipment as well as stationary diesel engines requiring API CD quality engine oil. It is designed specifically for use in naturally aspirated and light turbocharged diesel engines. Formulated for moderate to severe service depending on the diesel fuel sulphur level and oil change frequency.

Applications

- Heavy goods vehicles in general transport
- Construction and heavy earthmoving equipment
- Engine oils used in mobile air compressors
- Light trucks with diesel or gasoline engines
- Older model passenger cars
- Certain transmissions for earthmoving equipment

Performance Standards

VULCAN SUPER DUTY meets and exceeds the following International specifications:

API CD/SE

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN SUPER DUTY provides:

- An economical product with good all round performance
- Suitability for use in light turbocharging
- Excellent resistance to oxidation
- Good engine cleanliness with special detergent/dispersant properties
- Good resistance to corrosion



SAE Grade	40	50	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8996	0.9058	0.8752	0.8902
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	145.6	223.8	107.6	164.3
mm ² /s at 100°C	14.75	18.96	14.44	18.35
Pour Point, °C, ASTM D97	-15	-9	-27	-24
Flash Point, °C (COC), ASTM D92	246	262	230	240
Product code	200016	200013	200026	200034

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VULCAN SVI 70

Product Description

ENOC VULCAN SVI 70 is a high-performance multi-grade engine oil for use in heavy duty diesel engines. It has been developed using technology suitable for use against API service classification CI-4 for mixed fleet operations where European, US and Japanese heavy and light duty trucks are used. It has excellent total base number (TBN) retention that provides durable engine protection and oil consumption control.

Applications

- High speed diesel engines in offshore marine service (e.g. ferries, fishing boats, etc.)
- Heavy earth moving equipment used in the construction industry
- Long distance coach operations
- Mixed fleets of diesel engines
- Agricultural tractors
- Stationary power generation units using
- High speed diesel engines

Performance Standards

VULCAN SVI 70 is suitable for use against the following OEM and International specifications:

API CI-4

Always follow the equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

VULCAN SVI 70 provides: Extended oil drain intervals

- Helps extend oil drain intervals
- Engine deposit control
- Reduces fleet maintenance costs
- Helps preserve full power and performance
- Excellent control of oxidation and oil thickening
- Neutralization of corrosive acids



Label Grade Description	25W-70
Kinematic Viscosity mm ² /s @ 40°C	332.1
mm ² /s @ 100°C	30.65
Viscosity Index	128
Flash Point, COC, °C	252
Pour Point, °C	-18
TBN, mg KOH/g	11.1
CCS@-10degC	11000
Product code	200104

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Automotive Ancillary Oils

ENOC ACTIVE SYN OEM



Product Description

ENOC ACTIVE SYN OEM is a 100% synthetic automatic transmission fluid designed specifically for use in passenger cars and selected commercial vehicles automatic transmission with outstanding contribution to fuel economy performance in American, Japanese, Korean and European equipment. ACTIVE SYN OEM provides the excellent friction durability and anti-shudder performance required by GM, Ford, AISIN transmission manufacturers and many others.

Applications

ENOC Active SYN OEM can be used in North American, European, and Asian vehicles. It is compatible with most high performance stepped automatic transmissions and provides premium performance in older vehicles. Active SYN OEM is developed for LOW viscosity applications: Commercial vehicle automatic transmission and power steering

- Passenger car automatic transmissions and power steering
- Commercial vehicle automatic transmission and power steering
- Off-highway and construction equipment automatic transmissions
- Hydraulics

Performance Standards

ACTIVE SYN OEM is suitable for the following OEM and International specifications:

Aisin Warner JWS 3309 (T-IV) & JWS 3324 (WS)	Audi G 052 162-A1/A2	Audi G 055 025 A2 (JWS 3309)
Audi 5 HP LT71141 (ZF 5 HP 18FL/19FL/24A)	Suzuki AT OIL 5D06, ATF 2326, ATF 2384K, JWS 3309, ATF 3314, ATF 3317	VW 5 HP (ZF 5 HP 30), (18FL, 30), (19FL, 24A), G-055-025 A2 (JWS 3309), TL 521 62
BMW JWS 3309 (T-IV), LA2634, LT71141 (ZF 5 HP 18FL/19FL/24A), ZF 5HP18FL, 5HP24, 5HP30, 7045E, ETL- 80728, MINI	GM TASA, DEXRON*-II, DEXRON*-IID, DEXRON*-IIE, DEXRON*-IIIG, DEXRON*-IIIH, DEXRON*-VI	ZF all 3 & 4 speed transmission, TE-ML 09, 09X, 11A, AAB
Ford MERCON*, MERCON* LV (FF- WSS-M2C-938A/SF, XT-10 QLV), FNRS, WSS-M2C138CJ, WSS- M2C166H, WSS M2C 922A1, 924A (XT-8-QAW) JWS 3309	Hyundai/Kia AP-IV, SP-IV M, SP-IV-RR, SP-III, Dex-II/SP-II, JWS 3314, JWS 9683	Mazda ATF D-II, ATF M-III, ATF M-V, ATF FZ, ATF F-1, ATF S-1, ATF N-1, ATF 3317
Volvo CE 97340	Honda ATF-Z1 (except in CVTs), DW-1	Fuso ATF-II, ATF-SPIII, ATF-A4
Hino Blue Ribbon ATF	Subaru ATF, ATF 5AT, DEXRON*-II, ATF HP	Lexus JWS 3309
Chrysler ATF+, +2, +3 (MS 7176E), +4 (MS 9602)	Chrysler/Dodge MOPAR AS 68 RC (T- IV), JWS 3309	Mitsubishi Diaqueen SK, SP-II, SP-III, SP-IV, AW, J2, J3, ATF PA
Peugeot ZF 4HP20	ISUZU, BESCO ATF-II, ATF-III	Allison C-3 & C-4
Porsche, ZF 5HP19FL, ZF 5HP20, LT71141, ATF 3403-M115, T-IV (JWS 3309)	Jaguar ATF 3403 M115, ATF 3403- M115, ATF LT71141, ZF 5HP24, JLM20238	MB 236.1, 236.2, 236.3, 236.5, 236.6, 236.7, 236.8, 236.9
Daihatsu AMMIX ATF D-II, AMMIX ATF D-III SP	JASO M315-2013 1A, 1A-LV, 2A	Nissan Matic Fluid C, D, J, K, S
Toyota ATF D-II, D-III, T-III, T-IV, WS	JEEP ATF+3, +4	MINI COOPER T-IV

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE SYN OEM provides:

- Contribution to fuel economy
- Suitable for multi vehicle Automatic Transmission
- Excellent friction durability and anti-shudder performance
- Extended long drain intervals
- Very good low temperature fluidity

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8634
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	28.25
mm ² /s at 100°C	5.86
Viscosity index, ASTM D2270	158
Pour Point, °C, ASTM D97	-45
Flash Point, °C (COC), ASTM D92	210
Viscosity Brookfield at - 40°C, mPa.s, ASTM D2983	9618
Product code	221009

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

Technical Data*

ENOC ACTIVE SYN VVM

Product Description

ENOC ACTIVE SYN VVM is a fully synthetic premium automatic transmission oil meeting leading manufacturer's specifications. It has proven extended drain interval capabilities in various OEM applications. Formulated to demonstrate excellent shear stability, anti-foaming, oxidation control and excellent performance at low temperatures that improves and extends efficient operation. It is recommended for use in automatic and semi-automatic transmissions used in buses and coaches as well as various off-highway application requiring enduring performance. ENOC ACTIVE SYN VVM is recommended for mixed fleet operations. Specially approved for Voith, Volvo & MB transmissions. Extended oil drain [120.000 km] in ZF Ecomat, MB AT and Voith AT.

Applications

ACTIVE SYN VVM is recommended for:

- Heavy duty automatic transmissions with integral retarders
- Transmission systems of vehicles used for towing
- Transmission retarders
- Long drain applications
- Automatic and semi-automatic transmissions used in buses and coaches

*Extended drain intervals in heavy duty automatic transmissions City and Suburban service 100,000km or 2 years On-Highway 300,000km or 2 years for long drain oil applications

*ENOC Elaptech oil condition monitoring service is highly recommended to ensure optimum performance and durability.

Performance Standards

ACTIVE SYN VVM meets and exceeds the following OEM and International Specifications:

Allison C4	Volvo 97341
Allison TES-295	ZF TE-ML 02F, 04D, 05L, 09, 11A, 11B, 14A, 14B, 14C, 16L, 16M, 17C, 20C
MB-Approval 236.9	MAN 339 Type V-2
Voith H55.6336	MAN 339 Type Z-1, Z-2, Z3
Volvo 97340	Meets performance requirements for MB236.15

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE SYN VVM provides:

- Extended Oil Drain Interval per OEM requirements
- Excellent deposit control that helps prolong transmission life
- Improved Flow characteristics ensuring wide temperature operations
- Best in class anti-wear performance ensuring smooth transmission shifts
- Excellent Oxidation and Thermal stability with trouble free operations

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8525
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	36.0
mm ² /s at 100°C	7.40
Viscosity index, ASTM D2270	178
Pour Point, °C, ASTM D97	-45
Flash Point, °C (COC), ASTM D92	200
Viscosity Brookfield at - 40°C, mPa.s, ASTM D2983	14,100
Product code	221016

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ACTIVE CVT

Product Description

ENOC ACTIVE CVT is a 100% Fully Synthetic high performance Continuously Variable Transmission Fluids suitable for use in Japanese, American, Korean and European CVT's of push-belt and pull-chain designed transmissions. It is also suitable for use in wet clutch CVT's. ACTIVE CVT provides smoother, consistent all-weather step-less shifting. It has an all-around lubrication protection of the transmission components to help extends the transmission life and provides a smoother driving experience.

Applications

ACTIVE CVT is suitable for use in the following OEM vehicles as a CVT fluid:

Audi/ VW	TL 52180; G 052 180	SUBARU	NS- 2
FORD	CVT 30/ CVT 23	SUBARU	i-CVT Fluid
HONDA	HMMF	SUBARU	i-CVT FG
TOYOTA	TC, FE	SUZUKI	TC/ NS- 2
NISSAN	NS-2/NS-3	DODGE	CALIBER NS- 2
MITSUBISHI	CVT- J1/ SP- III	GM/ SATURN	DEX- CVT
DAIHATSU	TC	MERCEDES BENZ	236.20
		HYUNDAI/ KIA	SP III
Proton Preve, Inspira, Exora, Iris		MAZDA	CVTF 3320

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE CVT provides:

- Excellent protection metal-on-metal protection between Belt and Pulley
- Metal Anti-wear on pull-chain CVTs
- Good shear stability, anti-foaming and anti-wear
- Good performance on high torque applications
- Excellent thermal and oxidation stability or consistent transmission performance
- Compatability with all common seal materials helping control the leakage
- Effective foam control properties that will provide consistent shifting performance
- Excellent low temperature fluidity

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8605
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	35.37
mm ² /s at 100°C	7.27
Viscosity index, ASTM D2270	176
Pour Point, °C, ASTM D97	-52
Flash Point, °C (COC), ASTM D92	210
Viscosity Brookfield at - 40°C, mPa.s, ASTM D2983	13,200
Product code	221010

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ACTIVE DCF

Product Description

ENOC ACTIVE DCF is a high performance fully synthetic multi-vehicle dual clutch transmission fluid. It is designed to be used in all OEM wet dual clutch transmission with proven performance exceeding the recommended drain intervals. ENOC ACTIVE DCF is formulated from unique additive technology to provide the anti-wear and optimized frictional performance for the transmission gears as well as providing the anti-shuddering frictional properties for the wet clutches.

Applications

All modern vehicles fitted with Wet Dual Clutch transmissions

Performance Standards

ACTIVE DCF meets and exceeds the following International specifications:

Audi	VW TL 052 182/ VW TL 052 529
Mercedes-Benz	MB 236.21/MB 236.25
BMW	(Getrag) 83 22 2 148 578/579
Mitsubishi	MZ320065 Dia-Queen SSTF-I
BMW	(Getrag) 83 22 0 440 214/83 22 2 147 477
Nissan	Ford M2C936A
BMW	(Getrag) BMCTF-1
Porsche (ZF) Porsche	Oil No. 999.917.080.00 (FFL-3)
Citroen/	Peugeot PSA 9734.S2
Renault	BOT 450
Ferrari	TF DCT-F3
Seat/Skoda/VW VW	TL 052 182
Fait	BOT 341
Volvo	1161838 1161839
Ford/Getrag	Ford M2C936A

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

ACTIVE DCF provides:

- Excellent friction durability giving smooth shift and excellent drain intervals
- Optimum protection to gears and bearings that helps increase transmission life
- Provides exceptional seal performance protecting against fluid leakage and oil starvation
- Proven field performance in multi vehicle transmission

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8549
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	36.0
mm ² /s at 100°C	7.25
Viscosity index, ASTM D2270	171
Pour Point, °C, ASTM D97	-45
Flash Point, °C (COC), ASTM D92	206
Viscosity Brookfield at - 40°C, mPa.s, ASTM D2983	11250
Product code	221015

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ACTIVE PREMIUM



Product Description

ENOC ACTIVE PREMIUM meets the specifications Dexron® III H and Ford Mercon® for automatic transmissions and power steering fluid. It is designed for the lubrication of torque converters, transmission gear and hydraulic systems used in passenger cars, light trucks and heavy vehicles. Active Premium is formulated to perform with exceptionally high technical standards needed to meet the wide range of lubrication requirements found in transmission systems requiring Dexron III/Mercon specifications.

Applications

- Car and light truck automatic transmissions
- Heavy duty truck automatic transmissions
- Off-highway plant equipment using full or semi-automatic gearboxes
- Power steering where ATF Dexron® III H or Mercon® fluid is recommended
- Rotary air compressors requiring anti-wear type compressor oil
- Marine anti-wear hydraulic systems in low temperature applications
- Mobile equipment hydraulic systems

Performance Standards

ACTIVE PREMIUM meets the following OEM and International specifications:

General Motors	DEXRON® III H fluid
Ford	MERCON® fluid

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE PREMIUM provides:

- The latest automatic transmission fluid specifications
- Maximum transmission life through high performance chemical additive technology
- Smooth gear-changing through balanced anti-wear and friction modifier characteristics
- Compatibility with International Oil company competitor products
- Suitability for a wide range of applications which assist with inventory control

Caution: Do not overfill automatic transmissions as this may cause foaming and possible malfunction of the unit.

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8570
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	35.8
mm ² /s at 100°C	7.35
Viscosity index, ASTM D2270	177
Pour Point, °C, ASTM D97	-45
Flash Point, °C (COC), ASTM D92	210
Viscosity Brookfield at - 40°C, mPa.s, ASTM D2983	17856
Product code	221002

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ACTIVE SUPER

Product Description

ENOC ACTIVE SUPER is a multipurpose automatic transmission and power steering fluid designed to meet the Lubrication requirements of torque converters, transmission gear and hydraulic systems used in passenger cars, light trucks and heavy vehicles. ACTIVE SUPER is a low viscosity red dyed oil which performs to the exceptionally high technical standards needed to meet the wide range of lubrication requirements found in transmission systems.

Applications

- Car and light truck automatic transmissions
- Heavy duty truck automatic transmissions
- Off-highway plant equipment using full or semi-automatic gearboxes
- Power steering where ATF Dexron II® or Mercon® fluid is recommended
- Rotary air compressors requiring anti-wear type compressor oil
- Marine anti-wear hydraulic systems in low temperature applications
- Mobile equipment hydraulic systems

Performance Standards

ACTIVE SUPER meets and exceeds the following OEM and International specifications: General Motors Dexron® IID

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE SUPER provides:

- Longer transmission & equipment life, reduced down-time
- Prolonged service life through the use of a specially developed chemical inhibitor system
- Smooth gear changes which assist in the protection of the transmission gears against wear
- Wide operating temperature capability

Color, ASTM D 1500	RED
Density at 15°C, kg/L, ASTM D4052	0.8638
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	37.0
mm ² /s at 100°C	7.25
Viscosity index, ASTM D2270	164
Pour Point, °C, ASTM D97	-45
Flash Point, °C (COC), ASTM D92	210
Product code	221001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ACTIVE CTF

Product Description

ENOC ACTIVE CTF is a high-quality power transmission fluid meeting the stringent requirements of the Caterpillar TO-4 and Allison C-4 specifications. Its main application is in heavy construction equipment operating with semi or automatic transmissions. It has excellent friction control performance, wear protection and low temperature fluidity. Stable static and dynamic coefficients of friction prevents noise generation in wet disc brakes. Its excellent oxidation stability and sludge control provides longer drain capability in accordance with the OEM (Original Equipment Manufacturers) recommendations.

Applications

- Caterpillar power shift transmissions and final drives (Replaces the old engine oil specification TO-2)
- Mobile hydraulic systems and hydrostatic transmissions
- All Allison heavy duty automatic gearboxes with torque convertor and power shift transmissions
- Marine transmissions requiring Allison C-4 fluid
- Other makes of heavy duty automatic and power shift transmissions

Performance Standards

ACTIVE CTF meets and exceeds the following OEM and International specifications:

Caterpillar	TO-4 and TO-4M	Eaton Fuller	Transmissions
Allison	C-4	ZF	TE-ML- 03C, 07F
Komatsu	KES 07.868.1		

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE CTF provides:

- Excellent resistance to oxidation
- Good anti-wear protection
- Seal compatibility
- Protection against copper corrosion
- Maximum foam prevention
- Very good low temperature fluidity
- Extended service life

SAE Grade	10W	30	50	60
Density at 15°C, kg/L, ASTM D4052	0.8610	0.8925	0.9020	0.9060
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	33.27	102	222	316.6
mm ² /s at 100°C	5.66	11.50	19.10	23.3
Viscosity index, ASTM D2270	109	99	97	97
Pour Point, °C, ASTM D97	-27	-18	-18	-12
Flash Point, °C (COC), ASTM D92	214	242	256	262
Product code	221005	221004	221003	221006

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ACTIVE HEAVY DUTY

Product Description

ENOC ACTIVE HEAVY DUTY is a power transmission fluid meeting the obsolete requirements of the Caterpillar TO-2 specifications. Its main application is in heavy construction equipment operating with semi or automatic transmissions. It has friction control performance, wear protection and low temperature fluidity capability. Stable static and dynamic coefficients of friction prevents noise generation in wet disc brakes.

Applications

- Caterpillar power shift transmissions and final drives (Replaces the old engine oil specification TO-2)
- Mobile hydraulic systems and hydrostatic transmissions
- All Allison heavy duty automatic gearboxes with torque convertor and power shift transmissions
- Marine transmissions
- Other makes of heavy duty automatic and power shift transmissions

Performance Standards

ACTIVE HEAVY DUTY meets and exceeds the following OEM and International specifications:

Caterpillar TO-2

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

ACTIVE HEAVY DUTY provides:

- Resistance to oxidation
- Good anti-wear protection
- Seal compatibility
- Protection against copper corrosion
- Foam prevention
- Good low temperature fluidity



SAE Grade	10W	30	40	50
Density at 15°C, kg/L, ASTM D4052	0.8610	0.8925	0.8992	0.9025
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	37	105	148	213.9
mm ² /s at 100°C	5.80	11.5	14.5	18.45
Viscosity index, ASTM D2270	96	95	96	95
Pour Point, °C, ASTM D97	-30	-18	-15	-12
Flash Point, °C (COC), ASTM D92	214	242	250	256
Product code	221011	221012	221013	221014

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC TRACTOR UTF

Product Description

ENOC TRACTOR UTF oil is a high quality multipurpose tractor fluid for the agriculture market known as Universal tractor transmission fluid. It is recommended as an all-year round fluid meeting most tractor manufactures' specifications and approvals providing excellent performance in all tractor applications with the exception of the engine. It has the benefit of being able to offer "one oil" for the hydraulic system, transmission, final drive and differentials where a "wet" brake system is employed.

Applications

- Tractor transmissions and final drives
- Mixed fleet agriculture equipment
- Ford, Massey Ferguson, John Deere, Fiat and other tractor manufactures' transmissions
- Transmissions requiring Allison C-4 fluid
- Hydraulic applications where an ISO VG 46 ~ 68 is recommended
- Transmissions/differentials with oil immersed braking systems

Performance Standards

TRACTOR UTF meets the performance requirements following OEM and International specifications:

SAE	10W-30 ; 80W	Massey Ferguson	M1135, M1141, M1143
FORD New Holland ESN	M2C 134D	Case International	Komatsu Dresser-B060002
Allison	C-4	ZF	TE-ML-03E, 03F,05F,06K
API	GL-4	Case & New Holland (CNH)	MAT 3525
Caterpillar	TO-2	Komatsu Dresser	B-060002
John Deere	JDM J20C/ J20D	Kobuta	UDT Fluid
VOLVO	WB101		



Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

TRACTOR UTF provides:

- Rationalization requiring only one fluid for all farm drive line components
- Savings on inventory cost, ordering and administration
- Protection against potential damage through the wrong oil being used
- Improved equipment life by ensuring the right oil is used every time
- Robust additive technology ensuring smooth and quiet transmission/differential operation
- Reduced maintenance costs compared with using individual oils

SAE Grade	10W-30; 80W
Density at 15°C, kg/L, ASTM D4052	0.8747
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	65.36
mm ² /s at 100°C	10.53
Viscosity index, ASTM D2270	150
Pour Point, °C, ASTM D97	-39
Flash Point, °C (COC), ASTM D92	218
Product code	262001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC TRACTOR STO

Product Description

ENOC TRACTOR STO oils are high quality all-purpose multigrade tractor oils for the agriculture market known as Super Tractor Oil Universal oils. They are recommended as an all-year round oil meeting many tractor manufacturers' specifications and providing excellent performance in all tractor applications, hydraulics, transmissions, and engines. They can be used in agricultural tractors and other agricultural equipment with the benefit of one oil for all these lubrication applications.

Applications

- Agricultural tractors Ford, Massey Ferguson and others recommending STOU applications
- Mixed fleet agriculture equipment
- Tractor universal transmission meeting John Deere JDM J27, MF CMS M1145 specifications
- Transmissions requiring API GL-4 and Allison C-4 fluid
- Hydraulic systems with performance meeting ISO HV 68/100

Performance Standards

TRACTOR STO meets and exceeds the following OEM and International specifications:

FORD	M2C 159B	Allison	C-4
API	GL-4	API	CG-4/CF-4/CF/CE
MIL	MIL-L-2104D	ZF	TE-ML 06B/06C/07B
John Deere	JDM J27	Massey Ferguson	CMS M1139, M1144, M1145



Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil drain intervals.

Benefits

TRACTOR STO provides:

- Rationalization requiring only one oil for all farm equipment lubrication
- Saves on inventory cost, ordering and administration
- Protects all farm equipment against potential damage through the wrong oil being used
- Provides long equipment life by ensuring the right oil is used every time
- Robust additive technology ensures smooth and quiet transmission in wet brake operation
- Low maintenance costs compared with using individual oils

SAE Grade	15W-30	15W-40	20W-40
Density @ 15°C	0.880	0.8789	0.8828
Viscosity mm ² /s @ 100°C	11.29	14.49	15.6
mm ² /s @ 40°C	85.02	108	140
Viscosity Index	122	138	115
Flash point COC °C	218	220	228
Pour Point, °C	-30	-30	-24
Product code	262002	262004	262003

Technical Data*

ENOC ZENON ULTRA PLUS SYN

Product Description

ENOC ZENON ULTRA PLUS SYN SAE 75W-90 is Synthetic based high quality, multigrade axle lubricant suitable for use in light duty vehicles, trucks, buses, construction plant equipment's. It is blended from high quality synthetic base oils and provide long life by offering a high degree of resistance to gear wear and scuffing as well as excellent wide temperature operating capabilities.

Applications

- Suitable for heavy duty service in hypoid, spiral level, spur and double reduction rear axles
- Multi-viscosity gear oils operating conditions over wide temperature ranges
- Steering boxes and oil lubricated universal joints

Performance Standards

ZENON ULTRA PLUS SYN meets and exceeds the following OEM and International Specifications:

API GL-5	MB Approval 235.6
Volvo Transmission Oil 97312	Scania STO 1:0
SAE J306	DAF
ZF TE-ML 05B, 12B, 16F, 17B	MAN 342 Type S-1
	Meritor Europe (Cameri)



Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON ULTRA PLUS SYN SAE 75W-90 provides:

- Excellent low and high temperature performance
- Potential for fuel savings through higher gear box efficiency
- Good gear protection against scuffing, pitting and micro-pitting
- Extended drain intervals for less oil disposal
- Meets the latest OEM Driveline specifications for Rear Axle application
- Reduced maintenance and down time

SAE Grade	75W-90
Kinematic Viscosity mm ² /s @ 40°C	106
mm ² /s @ 100°C	15.6
Viscosity Index	155
Flash Point, COC, °C	>200
Pour Point, °C	-57
Product Code	222025

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ZENON ULTRA PLUS SYN

Product Description

ENOC ZENON ULTRA PLUS SYN SAE 75W-140 is a Fully Synthetic high quality, multigrade axle lubricant suitable for use in trucks, buses, construction plant equipment's. It is blended from high quality synthetic base oils and provide long life by offering a high degree of resistance to gear wear and scuffing as well as excellent wide temperature operating capabilities. The low temperature performance will also help improve fuel economy.

Applications

- Very high performance synthetic oil for axles and reduction gears
- Suitable for heavy duty service in hypoid, spiral bevel, spur and double reduction rear axles
- Multi-viscosity gear oils operating conditions over wide temperature ranges

Performance Standards

ZENON ULTRA PLUS SYN meets the following International Specifications:

API GL-5	Scania STO 2:0A
API MT-1	ZF TE-ML 05A
ARVIN MERITOR 0-76-M	ZF TE-ML 07A
Mack GO-J	ZF TE-ML 12N
MIL-PRF-2105E	ZF TE-ML 16F
SAE J2360	ZF TE-ML 19C
Scania STO 1:0	ZF TE-ML 21A



Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON ULTRA PLUS SYN SAE 75W-140 provides:

- High load carrying capacity
- Superior oxidation characteristics that provides final drive & differential cleanliness
- Long service life
- Excellent temperature reduction and shear stability enhances final drive components life.

SAE Grade	75W- 140
Kinematic Viscosity	
mm ² /s @ 40°C	185
mm ² /s @100°C	25
Viscosity Index	160
Pour Point, °C	-46
Product Code	222035

Technical Data*

ENOC ZENON ULTRA LSD

Product Description

ENOC ZENON ULTRA PLUS LSD fluid has been developed specifically for Limited Slip differentials providing superior quality multigrade gear performance. The formulation contains special friction properties that reduce transmission noise and extended life with smooth operation. Recommended for self-blocking axles equipped with limited slip differentials requiring SAE 80W-90.

Applications

- Limited Slip Differentials for cars, 4X4 vehicles, light trucks under extreme operating conditions
- Suitable for use with self-blocking axle rear wheel differentials

Performance Standards

ZENON ULTRA PLUS LSD meets the performance requirement following OEM and International specifications:

API	GL-5
ZF	TE-ML 05C, 12C

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON ULTRA PLUS LSD provides:

- Shudder free operation due to special lubricant with modified friction characteristics
- Special Extreme pressure anti-wear performance provides long gear life
- Eliminates stick-slip conditions in difficult 4X4 off-road operations and high performance cars with Limited Slip differentials



SAE Grade	80W-90	80W-90	85W-140
Kinematic Viscosity			
mm ² /s @ 40°C	154	160	403.10
mm ² /s @100°C	15.35	15.8	28.44
Viscosity Index	101	101	97
Flash Point COC °C	218	228	232
Pour Point, °C	-27	-21	-15
Product Code	222011	222029	222018

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON ULTRA PLUS

Product Description

ENOC ZENON ULTRA PLUS fluids are superior quality multigrade gear and transmission oils suitable for cars, trucks, construction plant and other mobile equipment. They provide long life by offering a high degree of resistance to gear wear and scuffing. Non-scheduled maintenance work can be reduced due to the minimizing of premature gear failures and deposit formation on bearings, working surfaces and seals which can lead to leakage. They contain balanced extreme pressure chemical technology designed to minimize scuffing and scoring of gear surfaces despite high speed, high torque and shock operation.

Applications

- Suitable for heavy duty service in hypoid, spiral level, spur and double reduction rear axles
- Manual gearboxes (constant or synchromesh), auxiliary gearboxes and transfer boxes
- Multi-viscosity gear oils operating conditions over wide temperature ranges
- Steering boxes and oil lubricated universal joints

Performance Standards

ZENON ULTRA PLUS meets and exceeds the following OEM and International specifications:

API	GL-5
US Military	MIL-L-2105D (80W-90 & 85W-140)
MAN	342 Type M1 & M2
ZF	TE-ML 05A,07A, 12E, 16B, 16C, 16D, 17B, 19B, and 21A

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON ULTRA PLUS provides:

- The opportunity to rationalize gear and transmission oils
- High load carrying capacity
- Superior oxidation resistance
- Long service life
- Excellent low temperature performance
- Wide temperature of operation

SAE Grade	80W-90	85W-90	85W-140
Density at 15°C, kg/L, ASTM D4052	0.8820	0.8888	0.9086
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	136.6	162.1	381.9
mm ² /s at 100°C	14.0	15.84	27.2
Viscosity index, ASTM D2270	99	100	96
Pour Point, °C, ASTM D97	-27	-21	-12
Flash Point, °C (COC), ASTM D92	218	224	228
Product code	222007	222019	222008

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ZENON ULTRA

Product Description

ENOC ZENON ULTRA fluids are a range of superior quality transmission oils suitable for cars, trucks and construction plant equipment. They contain balanced extreme pressure chemical technology meeting the API GL-5 classification designed to minimize scuffing and scoring of gear surfaces under high speed, extremely high torque and shock load operation. In addition, thermally stable oxidation inhibitors assist in long oil service life.

Applications

- Suitable for heavy duty service in hypoid and spiral bevel differentials
- Double reduction rear axles in heavy vehicles
- Hub reduction gears in off-highway heavy construction equipment
- Some manual gearboxes (constant or synchromesh), auxiliary gearboxes and transfer boxes
- Steering boxes

Performance Standards

ZENON ULTRA meets and exceeds the following International specifications:

API	GL-5
US Military	MIL-L-2105D

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON ULTRA provides:

- The opportunity to rationalization Gear and Transmission Oils
- High load carrying capacity
- Superior oxidation resistance
- Long service life
- Excellent low temperature performance

SAE Grade	90	140
Density at 15°C, kg/L, ASTM D4052	0.8968	0.9125
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	186.1	390.5
mm ² /s at 100°C	16.9	27.8
Viscosity index, ASTM D2270	96	97
Pour Point, °C, ASTM D97	-12	-9
Flash Point, °C (COC), ASTM D92	226	232
Product code	222005	222006

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM PLUS V

Product Description

ENOC ZENON PREMIUM PLUS V SAE 75W-90 is fully Synthetic high quality, multigrade gear oil suitable for use in manual transmission of heavy duty trucks. It is blended from high quality synthetic base oils and incorporates balanced, extreme pressure chemical technology to minimize scuffing and scoring of transmission gears operating in high speed and high torque conditions. Especially recommended for use in countries where the ambient temperature is above 30oC.

Applications

- Manual synchromesh transmissions for trucks
- Developed to meet Volvo 97315 long drain specification

Performance Standards

ZENON PREMIUM PLUS V meets and exceeds the following International specifications:

API GL-4
Volvo 97315

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Key Benefits:

ZENON PREMIUM PLUS V provides:

- Robust oxidation and corrosion protection
- Strong wear protection for gears and bearings
- Friction durability with different materials
- High levels of shear stability
- Extended oil drain intervals



SAE Grade	75W-90
Kinematic Viscosity	
mm ² /s @ 40°C	140.0
mm ² /s @ 100°C	18.25
Viscosity Index	146
Pour Point, °C	-39
Flash point C	235
Product Code	222028

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ZENON UNIVERSAL

Product Description

ENOC ZENON UNIVERSAL fluids is a part Synthetic based high quality, multigrade manual transmission, differentials and final drive oil suitable for use in trucks, buses, construction plant equipment especially heavy loaded commercial vehicles. It is blended from high quality part synthetic base oils and incorporates balanced, extreme pressure chemical technology to minimize scuffing and scoring of transmission gears operating in high speed and high torque conditions.

Applications

- Heavy loaded transmissions, differentials and final drives for commercial trucks
- Manual synchromesh transmissions for cars, trucks and buses
- Final drive axles in certain makes of vehicles
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ENOC ZENON UNIVERSAL meets and exceeds the following International specifications:

API GL-4, GL-5, MT-1	Daimler MB-Approval 235.0
DAF	Eaton
Iveco	Mack GO-J
MAN 341 Z-2 & 342M-2	Meritor 0-76
Renault	Scania STO 10,
Volvo 97310	ZF TE-ML 02B, 05A, 07A, 08, 12L, 12M, 16B, 16C, 17B, 19B, 21A



Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ENOC ZENON UNIVERSAL provides:

- Robust oxidation and corrosion protection
- Strong wear protection for gears and bearings
- Friction durability with different materials
- High levels of shear stability
- Extended oil drain intervals

SAE Grade	80W-90
Density at 15°C, kg/L, ASTM D4052	0.8908
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	141.0
mm ² /s at 100°C	14.60
Viscosity index, ASTM D2270	102
Pour Point, °C, ASTM D97	-30
Flash Point, °C (COC), ASTM D92	226
Product code	222023

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM PLUS SYN

Product Description

ENOC ZENON PREMIUM PLUS SYN fluids is Synthetic based high quality, multigrade gear and transmission oil suitable for use in cars, trucks, buses, construction plant equipment. It is blended from high quality synthetic base oils and incorporate balanced, extreme pressure chemical technology to minimise scuffing and scoring of transmission gears operating in high speed and high torque conditions. Especially recommended for trucks and coaches equipped with ZF manual gear boxes.

Applications

- Manual synchromesh transmissions for cars, trucks and buses
- Spiral-Bevel final drive axles in certain makes of vehicles
- Automotive steering boxes
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ZENON PREMIUM PLUS SYN meets and exceeds the following International specifications

API GL-4
 Eaton Europe 300,000 km or 3 years (meets specification)
 MAN 341 Type E-3
 MAN 341 Type Z-4
 ZF TE-ML 01L, ZF TE-ML 02L, ZF TE-ML 08, ZF TE-ML 16K
 Volvo 97305

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON PREMIUM PLUS SYN provide:

- Robust oxidation and corrosion protection
- Strong wear protection for gears and bearings
- Friction durability with different materials
- High levels of shear stability
- Extended oil drain intervals

SAE Grade	75W-80
Kinematic Viscosity	
mm ² /s @ 40°C	56.7
mm ² /s @ 100°C	9.5
Viscosity Index	150
Pour Point, °C	-42
Flash point C	220
Product Code	222015

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM PLUS SYN



Product Description

ENOC ZENON PREMIUM PLUS SYN SAE 75W-85 fluid is a Synthetic based high quality, multigrade gear oil suitable for use in cars, trucks, buses, construction plant equipment. It is blended from high quality synthetic base oils and incorporates balanced, extreme pressure chemical technology to minimise scuffing and scoring of transmission gears operating in high speed and high torque conditions where API GL-4 performance is required.

Applications

- Manual synchromesh transmissions for cars, trucks and buses
- Spiral-Bevel final drive axles in certain makes of vehicles
- Automotive steering boxes
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ZENON PREMIUM PLUS SYN SAE 75W-85 meets and exceeds the following International specification:

API GL-4

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON PREMIUM PLUS SYN SAE 75W-85 provides :

- Robust oxidation and corrosion protection
- Strong wear protection for gears and bearings
- Friction durability with different materials
- High levels of shear stability
- Extended oil drain intervals

SAE Grade	75W-85
Kinematic Viscosity	
mm ² /s @ 40°C	72.5
mm ² /s @ 100°C	11.70
Viscosity Index	156
Pour Point, °C	-45
Flash point C	220
Product Code	222017

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM PLUS SYN

Product Description

ENOC ZENON PREMIUM PLUS SYN 75W-90 is Synthetic high-quality manual gear oil engineered to meet extended Long drain requirements of various original equipment manufacturers. This product is suitable for use in cars, trucks, buses, construction plant equipment where the API GL4 performance is required. It is blended from high quality synthetic base oils and incorporates balanced, extreme pressure chemical technology to minimise scuffing and scoring of transmission gears operating in high speed and high torque conditions. Especially recommended for trucks and coaches equipped with ZF manual gear boxes.

Applications

- Manual synchromesh transmissions for cars, trucks and buses
- Spiral-Bevel final drive axles in certain makes of vehicles
- Automotive steering boxes
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ZENON PREMIUM PLUS SYN 75W-90 meets and exceeds the following International specifications:

API	GL-4
-----	------

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON PREMIUM PLUS SYN 75W-90 provides :

- Robust oxidation and corrosion protection Strong wear protection for gears and bearings
- Compatibility with different materials in gearbox
- High levels of shear stability
- Extended oil drain capability reducing overhaul and maintenance downtime
- Exceptional thermal stability and resistance to high temperature oxidation

SAE Grade	75W- 90
Kinematic Viscosity	
mm ² /s @ 40°C	94.6
mm ² /s @100°C	14.6
Viscosity Index	162
Pour Point, °C	-51
Flash point C	200
Product Code	222016

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM PLUS



Product Description

ENOC ZENON PREMIUM PLUS fluids are high quality mild extreme pressure multigrade gear and transmission oils suitable for use in cars, trucks, buses, construction plant equipment. They are blended from high quality base oils and incorporate balanced, extreme pressure chemical technology to minimize scuffing and scoring of transmission gears operating in high speed and high torque conditions where API GL-4 performance is required.

Applications

- Manual synchromesh transmissions for cars, trucks and buses
- Spiral-Bevel final drive axles in certain makes of vehicles
- Automotive steering boxes
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ZENON PREMIUM PLUS meets and exceeds the following International specifications:

API	GL-4
US Military	MIL-L-2105
ZF	TE-ML 02

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON PREMIUM PLUS provides:

- Extended gear and bearing life
- Protection against rust and corrosion
- Excellent seal compatibility
- Smooth gearbox changes
- Wide operating temperature range

SAE Grade	80W	80W-90	85W-140
Density at 15°C, kg/L, ASTM D4052	0.8762	0.8938	0.9068
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	102.6	136.6	359.1
mm ² /s at 100°C	11.60	14.05	26.6
Viscosity index, ASTM D2270	99	100	99
Pour Point, °C, ASTM D97	-27	-27	-12
Flash Point, °C (COC), ASTM D92	216	222	234
Product code	222014	222003	222004

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON PREMIUM

Applications

ENOC ZENON PREMIUM fluids are a range of high quality mild extreme pressure transmission oils suitable for use in cars, trucks, buses and construction plant equipment. They have been developed to minimize scuffing and provide resistance to damage of transmission gears operating in high speed and high torque conditions where API GL-4 performance is required.

Applications

- Manual synchromesh transmissions for cars, trucks and buses
- Spiral-bevel final drive axles in certain makes of trucks
- Automotive steering boxes
- Tractor and off-road heavy equipment, transaxles and differentials

Performance Standards

ZENON PREMIUM meets and exceeds the following International specifications:

API	GL-4
US Military	MIL-L-2105

Always follow equipment manufacturer's recommendations for the required lubricant performance level and oil drain interval.

Benefits

ZENON PREMIUM provides:

- Extended gear and bearing life
- Protection against rust and corrosion
- Excellent seal compatibility
- Smooth gear chngest



SAE Grade	90	140
Density at 15°C, kg/L, ASTM D4052	0.8962	0.9125
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	188.5	388.6
mm ² /s at 100°C	17.20	27.38
Viscosity index, ASTM D2270	97	96
Pour Point,°C, ASTM D97	-12	-9
Flash Point,°C (COC), ASTM D92	228	234
Product code	222001	222002

Technical Data*

ENOC ZENON SUPER

Product Description

ENOC ZENON SUPER is a specially developed transmission oil for use in manual transmissions fitted to a wide range of vehicles, including light commercial vehicles and trucks, where an API GL-3 transmission oil is specified by the vehicle manufacturer. They are formulated from high quality, paraffinic type base oils, selected mild Extreme Pressure chemical technology and highly effective rust and corrosion inhibitors. This provides minimum wear characteristics of the drive-line components together with exceptional control over foaming, deposit formation and seal compatibility.

Applications

- Manual transmissions
- Steering boxes
- Automotive gear transmissions where mild EP performance is required
- Lightly loaded worm drive gears
- Where API GL-3 is specified by Iveco and Fiat manual transmissions

Performance Standards

ZENON SUPER meets and exceeds the following International specification:

API	GL-3
-----	------

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

ZENON SUPER provides:

- Smooth gear changing through friction control characteristics
- Excellent rust and corrosion resistance
- Resistance to foaming
- Long transmission life through mild extreme pressure additive system
- Good seal compatibility



SAE Grade	90	140
Density at 15°C, kg/L, ASTM D4052	0.8962	0.9125
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	189.7	390.5
mm ² /s at 100°C	17.3	27.65
Viscosity index, ASTM D2270	97	97
Pour Point,°C, ASTM D97	-12	-9
Flash Point,°C (COC), ASTM D92	228	234
Product code	222009	222010

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ZENON

Product Description

ENOC ZENON has been developed for use in mechanical transmissions that require an oil meeting API GL-1. It is formulated from high quality, paraffinic type base oils. ENOC Zenon is not suitable for extreme pressure gear oil applications.

Applications

- Certain manual transmissions
- Steering boxes where API GL-1 is required
- Suitable for certain manual gear transmissions and spiral-bevel axles
- Lightly loaded worm drive gears

Performance Standards

ZENON meets and exceeds the following International specifications:

API	GL-1
-----	------

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

ZENON provides:

- Smooth gear operation with mild anti-wear performance
- Good rust and corrosion resistance
- Resistance to foaming
- Good transmission life through resistance to oxidation



SAE Grade	90	140
Density at 15°C, kg/L, ASTM D4052	0.8996	0.9062
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	189.8	394.5
mm ² /s at 100°C	17.25	27.6
Viscosity index, ASTM D2270	99	96
Pour Point,°C, ASTM D97	-12	-9
Flash Point,°C (COC), ASTM D92	238	244
Product code	222012	222013

Technical Data*

ENOC EN-COOL EXTRA COOLANT



Product Description

ENOC EN-COOL EXTRA COOLANT is a superior quality engine coolant formulated from high purity monoethylene glycol and organic acid carboxylate technology corrosion inhibitors with proven heat transfer performance. It provides excellent corrosion protection for all metals in cooling systems of gasoline and diesel engines, especially the principle metals, iron, copper and aluminium. It is available diluted with de-ionized water at 33% and 50% concentrations of EN-COOL EXTRA coolant. EN-COOL EXTRA is free from potentially harmful additives such as nitrites, amines and phosphates and as such contributes to a safer environment.

Applications

- Demonstrated performance in automotive applications in excess of 80,000kms
- Increases the boiling point of water and gives better cooling in the high ambient temperature conditions
- Suitable for all vehicle makes including aluminium engine construction

Performance Specifications

EN-COOL EXTRA COOLANT meets and exceeds the following International Standards:

BS	6580 (2010)
ASTM	D 3306

Benefits

EN-COOL EXTRA COOLANT provides:

- Excellent engine cooling and protection against boiling in summer heat
- Superior anti-corrosion performance, particularly with aluminium and additives remain effective for a long duration
- Hard water stability thanks to absence of silicates and phosphates
- Compatibility with rubber and sealing materials
- No harmful nitrites, amines or phosphates
- Effective protection against frost in freezing winter conditions, depending on concentration

EN-COOL EXTRA	EC 100	EC 50	EC 33
EN COOL Extra by % vol. in water	100	50	33
Density at 20°C kg/L, ASTM D1122	1.110	1.070	1.046
Equilibrium Reflux Boiling Point,° C ASTM D1120	163	110	106
pH value ASTM D1287	8.47	8.57	8.32
Freezing Protection° C, ASTM D3321	ND	-37	-18
Inorganic Inhibitor	Nil	Nil	Nil
Organic Inhibitor (Carboxylate)	Present	Present	Present
Colour	Green	Green	Green
Product Code	223031	223032	223033

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC EN-COOL OAT EXTRA LONG-LIFE COOLANT



Product Description

ENOC EN-COOL OAT EXTRA LONG-LIFE COOLANT is a premium long-life coolant that is based on advanced technology of organic acid inhibitors (OAT) and meets the requirements of numerous Original Equipment Manufacturers (OEMs) worldwide. This coolant technology provides longlife corrosion protection for all engine metals, including aluminium and ferrous alloys and is recommended for use in cooling systems of liquid cooled automotive and industrial combustion engines. The corrosion inhibitors contained in EN-COOL OAT Extra Long-life have very low depletion rates, unlike traditional silicate based technologies. During extensive fleet testing, the synergistic combination of organic compounds present in this coolant, have proven to provide protection for at least 650,000 kms (ca. 8000 hours) in truck & bus application, 250,000 km (ca. 2000 hours) for passenger cars or 32000 hours (or 5 years) for stationary engines. Exempt from potentially harmful additives such as nitrites, amines and phosphates, the coolant will contribute to a safer environment. The 50% dilution of EN COOL OAT Extra Long-life provides protection over a wide operating temperature range for effective cooling in all climates.

Applications

All engines employing cast iron, aluminium, copper or a combination of these metals utilized in the construction of modern engines. It is also compatible with all standard rubber hoses, gaskets and seals used within the cooling system

- Heavy duty engines regardless of fuel type or environmental controls being used where the OEM recommends an extended life OAT type coolant
- Mixed fleets where both light duty and heavy duty trucks are present
- Stationary engine applications regardless of fuel type being used
- Marine cooling systems where freeze protection is needed
- Modern passenger car engines fitted with turbochargers, supercharged, GDI & other high output engines

Performance specifications

EN-COOL OAT EXTRA LONG-LIFE COOLANT (50% mixture only) meets the performance requirements of the following Original Equipment Manufactures as well as International Standards:

OEM	Specifications
Caterpillar (MAK / MWM)	A4.05.09.01 / 0199-99-2091/9
Cummins	IS Series u N14
Detroit Diesel	Series 50 & 60 engines
Deutz	DQC CB-14
Case New Holland	MAT3624
Daimler	325.3
Ford	WSS-M97B44-D
General Motors	GM 6277M
Hyundai/Kia	Suitable for use
Liebherr	MD1-36-130
MTU	MTL 5048

DAF	74002
Porsche	Suitable for use
Jenbacher	TA 1000-020/1
Komatsu	07.892 (2009)
MAN	324 Type SNF
Land-Rover	WSS-M97B44-D
Volvo AB	Whole group
Volkswagen	VW/Audi TL-774 D= G12
Wartsila	DLP799861 (SACM MD30, 33 &45)
ASTM	D3306/D4656 / D6210
British Standards	BS 6580:2010

Always follow equipment manufacturer's recommendation for required brake fluid performance level.

Benefits

EN-COOL OAT EXTRA LONG-LIFE COOLANT provides:

- Excellent engine cooling and protection against corrosion in engines
- Excellent protection against cavitation and effective water pump seal protection, reducing wear & noise
- Improved heat transfer properties due to excellent protection of radiators from blockages
- Stays effective over extended periods in heavy duty diesel and both diesel and gasoline passenger car engines
- This technology meets the requirements of the vast majority of OEM specifications internationally making the product truly ideal for mixed fleet operations

Note: First Time Fill: It is strongly recommended that the system is thoroughly flushed before filling with EN-COOL OAT Extra Long-life to gain maximum performance

EN-COOL OAT Extra Long-life	50	100
Density at 20°C kg/m ³ , ASTM D1122	1.074	1.110
pH value ASTM D1287	8.79	8.47
Colour	Orange colour with fluorescence	Orange colour with fluorescence
Freezing Protection,°C ASTM D3321	-37	ND
Equilibrium Reflux Boiling Point,°C ASTM D1120	108	170
Inorganic Inhibitor	NIL	NIL
Organic Inhibitor (Carboxylate)	Present	Present
Product Code	223035	223034

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC EN-COOL HEAVYDUTY NM COOLANT

Product Description

ENOC EN-COOL HEAVYDUTY NM COOLANT is a high performance long-life coolant that is based on advanced hybrid technology of organic acids and inorganic salts required for heavy duty diesel engines with wet liners.

Its exclusive formula based on unique blend of Nitrite & Molybdates with organic acids giving protection against liner pitting & long life performance. EN-COOL HEAVYDUTY NM ensures long term protection against corrosion for all metallic surfaces (ferrous and nonferrous) that form part of the engine cooling system.

Applications

- Specified for cooling systems in diesel engines with wet liner protection
- Provides the requirements for demanding efficient heat transfer in power generation engines
- Excellent protection against corrosion and cavitation.

Performance Specifications

EN-COOL HEAVYDUTY NM COOLANT meets the performance requirements of the following International specifications:

Caterpillar	EC-1
Detroit Series	60and DD15 Engines (SVC BRO 0002)
ASTM D3306, ASTM D6210	
TMC RP 329, TMC RP 302A, TMC RP 338	

Benefits

EN-COOL HEAVYDUTY NM COOLANT provides:

- Excellent engine cooling and protection against corrosion in heavy duty diesel engines.
- A high performance against rust corrosion using exclusive organic additive package
- Stays effective over extended periods heavy duty diesel engines.
- Effective protection against cavitation erosion

Note First Time Fill: It is strongly recommended that the system is thoroughly flushed before filling with ENOC EN-COOL HEAVYDUTY NM to gain maximum performance

EN-COOL HEAVYDUTY NM COOLANT

Reserve Alkalinity, ASTM D112	50
Amine, Phosphate, borate, silicate	2.3
Density at 20°C ASTM D153	NIL
pH value ASTM D1287	1.123
Freezing Protection, °C ASTM D1177	8.5
Nitrite (50%)	-37
Molybdate (50%)	500 ppm
Colour	510 ppm
Product Code	Red
	223036

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC EN X-TREME COOL



Product Description

ENOC EN X-TREME COOL EC50 is a premium long-life coolant that is based on advanced technology of organic acid inhibitors approved by numerous Original Equipment Manufacturers (OEMs) worldwide. This coolant technology provides long-life corrosion protection for all engine metals, including aluminium and ferrous alloys and is recommended for use in cooling systems of liquid cooled automotive combustion engines. The corrosion inhibitors contained in ENOC EN X-TREME COOL EC50 have very low depletion rates, unlike traditional silicate based technologies; proven to provide protection for at least 250,000 km (ca. 2000 hours) for passenger cars and light duty vehicles. Exempted from potentially harmful additives such as nitrites, amines and phosphates, the coolant will contribute to a safer environment. The 50% premix ENOC EN X-TREME COOL EC50 provides protection over wide operating temperature range for effective cooling in all climates.

Applications

- Modern passenger car engines fitted with turbochargers, supercharged, GDI & other high output engines
- Mixed fleets where both light duty and heavy duty trucks are present
All engines employing cast iron, aluminium, copper or combination of these metals used in modern engines. It is also compatible with all standard rubber hoses, gaskets and seals used within the cooling system.

Performance Specifications

EN X-TREME COOL EC50 meets the performance requirements of the following International specifications:

OEM	SPECIFICATIONS
Daimler	325.3
Ford	WSS-M97B44-D
General Motors	Chevrolet
Hyundai/Kia	Suitable for use
Mazda	MEZ MN 121 D
Porsche	Suitable for use
Land-Rover	WSS-M97B44-D
Volvo	Whole group
VW	VW/Audi TL-774 D= G12
ASTM	D3306/D4656
British Standards	BS 6580-2010
Korean Standards	KSM 2142

Benefits

EN X-TREME COOL EC50 :

- Excellent engine cooling and protection against corrosion in various engines
- Excellent protection against cavitation and effective water pump lubrication, reducing wear & noise
- Improved heat transfer properties due to excellent protection to radiators from blockages
- Stays effective over extended periods heavy duty diesel engines
- The technology meets the requirements of clear majority of OEM specifications internationally truly making this ideal for mixed fleet operations

ENOC EN X-TREME COOL Concentration %	50%
Density at 20°C ASTM D1122 g/ml	1.07
Equilibrium Reflux Boiling point, °C ASTM D1120	109
pH value 20 °C ASTM D1287	8.49
Freezing Protection, °C ASTM D1177	-39
Reserve Alkalinity, ASTM D1121	5.1
Colour	Blue
Product Code	223041

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC EN-COOL COMFORT COOL

Product Description

ENOC EN-COOL COMFORT COOL EC33 is a high quality coolant formulated from high purity monoethylene glycol and organic acid carboxylate technology corrosion inhibitors with proven coolant and heat transfer performance. It will give excellent corrosion protection to all metals used in the construction of gasoline and diesel engines especially the principal metals iron, copper and aluminium. It is available diluted with de-ionised water at 33% concentration.

Applications

- Demonstrated performance in automotive applications in excess of 80,000 kms
- Increases the boiling point of water and gives better cooling in the high ambient temperature conditions
- Suitable for all vehicle makes including aluminium engine construction
- Meets the International specifications and the major manufacturers' requirements as a premixed coolant

Performance Standards

EN-COOL COMFORT COOL meets and exceeds the following International specifications:

BS 6580 (2010)

ASTM D 3306

Benefits

EN-COOL COMFORT COOL provides:

- Excellent engine cooling and protection against boiling in summer heat
- A very high performance anti-rust and anti-corrosion, particularly with aluminium, package which stays effective for long duration as mentioned above in all modern engines
- Hard water stability thanks to absence of silicates and phosphates
- Compatibility with rubber and sealing materials

ENOC EN COMFORT COOL Concentration %	33
Density at 20 °C ASTM D1122 g/ml	1.043
Equilibrium Reflux Boiling point, °C ASTM D1120	105
pH value ASTM D1287	8.4
Freezing Protection °C, ASTM D1177	-19
Reserve Alkalinity, ASTM D1121	2.6
Colour	Red
Product Code	223042

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC EN-CORROSION INHIBITOR PRE-MIXED



Product Description

ENOC EN-CORROSION INHIBITOR PRE-MIXED is a premium long-life Water based coolant that is based on advanced technology of organic acid inhibitors approved by numerous Original Equipment Manufacturers (OEMs) worldwide. This coolant technology provides long-life corrosion protection for all engine metals, including aluminium and ferrous alloys and is recommended for use in cooling systems of liquid cooled automotive and industrial combustion engines. The corrosion inhibitors contained in EN-CORROSION INHIBITOR PRE-MIXED have very low depletion rates, unlike traditional silicate based technologies. During extensive testing, the synergistic combination of organic compounds present in this coolant, have proven to provide protection for 8000 hours in construction application or 32000 hours (or 5 years) for stationary engines. Exempt from potentially harmful additives such as nitrites, amines and phosphates, the coolant will contribute to a safer environment.

Applications

- Ready to use for all engines that do not require freezing protection/extra boiling protection
- All engines employing cast iron, aluminium, copper or combination of these metals used in modern engines. It is also compatible with all standard rubber hoses, gaskets and seals used within the cooling system
- Heavy duty engines regardless of fuel type or environmental controls being used where the OEM recommends a non glycol, extended life, salt free water based coolants
- Stationary engine applications regardless of fuel type being used
- Marine cooling systems where freeze protection is not required

Performance Specifications

EN-CORROSION INHIBITOR PRE-MIXED meets the performance requirements of the following International specifications

Detroit Diesel	MaK
Deutz	Sulzer Diesel
Deutz/MWM	Alsthom Ruston
Liebherr	Yanmar
MTU	MAN
Wartsila	

Benefits

EN-CORROSION INHIBITOR PRE-MIXED provides:

- Excellent engine cooling and protection against corrosion in various engines
- Excellent protection against cavitation and effective water pump lubrication, reducing wear & noise
- Improved heat transfer properties due to excellent protection to radiators from blockages
- Stays effective over extended periods heavy duty diesel engines
- The technology meets the requirements of clear majority of OEM specifications internationally truly making this ideal for mixed fleet operations

EN-CORROSION INHIBITOR PRE-MIXED	
Density at 20°C, kg/L, ASTM D4052	1.003
Amine, Phosphate, borate, silicate, nitrite	Nil
Color	Blue
pH at 20°C, ASTM D1287	7.8
Product code	223039

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC FUEL INJECTOR CLEANER DIESEL

Product Description

ENOC FUEL INJECTOR CLEANER - DIESEL is a multipurpose aftermarket fuel additive for diesel engines with a unique blend of organic compounds diluted in organic solvents.

It efficiently controls and removes vehicle intake system deposits, such as intake valve deposits, fuel injector deposits and combustion chamber deposits. It contains a very effective additive which increases the diesel fuel lubricity and helps to protect fuel system components from wear. In addition, it contains a very effective corrosion inhibitor which protects tanks and fuel lines against corrosion.

Applications

FUEL INJECTOR CLEANER - DIESEL is formulated to be added at volumes of 300 ml for a typical light duty diesel fuel tank: 40-80 L. for as long as 7500 km. The performance of the additive package depends on the severity of the diesel and the amount of the combustion chamber deposit.

Benefits

FUEL INJECTOR CLEANER - DIESEL provides:

- Removal / prevention of injector deposits in modern direct injection (DI) engines, to maintain full engine power and recover power loss
- Removal / prevention of internal diesel injector deposits (IDID)
- Removal / prevention of injector deposits in indirect injection (IDI) engines
- Protection of the fuel system against corrosion
- Increase of lubricity of diesel fuel
- Exhaust emissions may be lowered
- Fuel consumption may be reduced, depending on vehicles and operating conditions

Density @ 15°C kg/m ³	762
Viscosity mm ² /s @ 20°C	3
Flash Point, COC,°C	>61
Product Code	223056

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC FUEL INJECTOR CLEANER PETROL

Product Description

ENOC FUEL INJECTOR CLEANER - PETROL is a multipurpose aftermarket fuel additive for gasoline engines with a unique patented detergent combined with synthetic carrier fluids.

It efficiently controls and removes vehicle intake system deposits, such as intake valve deposits and fuel injector deposits. Furthermore, the fully synthetic composition of ENOC Fuel Injector Cleaner PETROL helps to control the formation of combustion chamber deposits.

ENOC FUEL INJECTOR CLEANER - PETROL contains a very effective friction modifier, which reduces friction in the engine and helps to reduce fuel consumption. In addition, it contains a very effective corrosion inhibitor which protects tanks, fuel lines and carburetors against corrosion.

Applications

FUEL INJECTOR CLEANER - PETROL is formulated to be added at volumes of 300 ml for a typical passenger fuel tank: 40-80 L. for as long as 7500 km. The performance of the additive package depends on the severity of the gasoline and the amount of the combustion chamber deposit.

Benefits

ENOC FUEL INJECTOR CLEANER - PETROL provides:

- Gives increased power & acceleration performance
- Keeps critical engine parts clean, free of deposits & reduces corrosion
- Helps environment by reduction of harmful emissions
- Improved fuel economy

Density @ 15°C kg/m ³	768
Viscosity mm ² /s @ -10°C	6
Viscosity mm ² /s @ 20°C	3
Flash Point, COC,°C	>61
Pour Point,°C	-20
Product Code	223055

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC EN-FLUSH OIL

Product Description

ENOC EN-FLUSH OIL is manufactured from high quality light viscosity paraffinic mineral oil, designed for the efficient EN-FLUSH of automotive equipment to remove residues prior to refilling with new engine lubricant.

Applications

EN-FLUSH OIL has been developed for the use in the flushing of automotive gasoline and diesel engines. It cleans the crankcase, cylinder walls, pistons and rings for maximum efficiency, protection and performance. This is done while the engine is idling so that there is less stress on the engine while the cleaning action occurs.

Recommendations

Once the EN-FLUSH OIL has been filled into the engine system it should be circulated for only a short time under light or no load conditions. At the end of the EN-FLUSH period, make sure the oil is drained while it is still hot.

Benefits

ENOC EN-FLUSH OIL provides:

- Improve oil flow for better performance
- Reduce risk of clogged oil galleries & ports

ENOC ULTRA BRAKE FLUID

Product Description

ENOC Ultra Brake Fluid is a synthetic brake and clutch fluid containing complex mixture of polyglycol ethers, glycol ether borate esters and polyglycols with additional corrosion and oxidation inhibitors. Brake Fluid DOT 4 is an efficient performance non-petroleum automotive brake fluid, designed for use in conventional hydraulic brakes and clutch systems, where DOT 4 fluids are recommended.

Applications

- Suitable for passenger cars, trucks and buses that require DOT 4 synthetic brake fluid
- High performance cars

Performance Standards

ULTRA BRAKE FLUID meets and exceeds the following International specifications:

FMVSS	116 DOT 4
SAE	J- 1704
ISO	4925

Always follow equipment manufacturer's recommendation for required brake fluid performance level.

Benefits

ULTRA BRAKE FLUID provides:

- Very high wet boiling point
- Excellent low-temperature stability
- High temperature viscosity performance
- Excellent corrosion protection
- Compatibility with different rubber seals
- Excellent thermal stability in high performance braking conditions

Cautionary Note

ULTRA BRAKE FLUID should not be used where a mineral type fluid is specified (e.g. Citroen).

Compatibility

ULTRA BRAKE FLUID is compatible with other DOT 4, SAE 1704 fluids and may be added as make-up fluid. It can be used throughout mixed fleets thereby avoiding the need to order stock and use a special fluid for different brake systems.



Density at 15°C, kg/L, ASTM D4052	0.8715
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	32.0
mm ² /s at 100°C	5.3
Viscosity index, ASTM D2270	96
Pour Point,°C, ASTM D97	-12
Flash Point,°C (COC), ASTM D92	210
Product code	210006

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

Density at 20°C, kg/L, ASTM D4052	1.067
Color	Amber
Wet Boiling Point,°C min, ASTM D 1120	155
Dry Boiling Point,°C, min, ASTM D 1120	240
Kinematic Viscosity @ 100°C, mm ² /s, ASTM D 445	2.32
Kinematic Viscosity @ -40°C, mm ² /s, ASTM D 445	1500
pH at 20°C, ASTM D1287	8.8
Product code	223002

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SUPER BRAKE FLUID

Product Description

ENOC Super Brake Fluid DOT 3 is a synthetic brake and clutch fluid containing complex mixture of polyglycol ethers, glycol ether borate esters and polyglycols with additional corrosion and oxidation inhibitors. Brake Fluid DOT 3 is an efficient performance non-petroleum automotive brake fluid, designed for use in conventional hydraulic brakes and clutch systems, where DOT 3 fluids are recommended.

Applications

Suitable for passenger cars, trucks and buses that require synthetic brake fluid

Performance Standards

SUPER BRAKE FLUID meets and exceeds the following International specifications:

FMVSS 116 for DOT 3
SAE J-1703
ISO 4925

Always follow equipment manufacturer's recommendation for required brake fluid performance level.

Benefits

SUPER BRAKE FLUID provides:

- High wet boiling point
- Excellent low-temperature stability
- Good temperature viscosity performance
- Excellent corrosion protection
- Compatibility with different rubber seals
- Excellent thermal stability

Cautionary Note

SUPER BRAKE FLUID should not be used where a mineral type fluid is specified (e.g. Citroen).

Compatibility

SUPER BRAKE FLUID is compatible with other DOT 3, SAE 1703 fluids and may be added as make-up fluid. It can be used throughout mixed fleets thereby avoiding the need to order stock and use a special fluid for different brake systems.

Density at 20°C, kg/L, ASTM D4052	1.0415
Color	Amber
Wet Boiling Point, °C min, ASTM D 1120	155
Dry Boiling Point, °C, min, ASTM D 1120	230
Kinematic Viscosity @ 100°C, mm ² /s, ASTM D 445	2.21
Kinematic Viscosity @ -40°C, mm ² /s, ASTM D 445	1400
pH at 20°C, ASTM D1287	8.5
Product code	223001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SUPER BLUE BRAKE & CLUTCH FLUID



Product Description

ENOC SUPER BLUE BRAKE & CLUTCH FLUID is a high quality synthetic brake and clutch fluid conforming to the DOT3 specification and based on polyglycol type fluid that is the general standard used in worldwide automotive brake equipment. It is designed to obtain optimum performance and maximum safety with its distinctive blue color for better and easy identification.

Applications

Suitable for passenger cars and light duty vehicles that require a synthetic brake fluid

Performance Standards

SUPER BLUE BRAKE & CLUTCH FLUID meets and exceeds the following international specifications:

FMSS 116 for DOT 3 SAE J-1703

Always follow equipment manufacturer's recommendation for required brake fluid performance level.

Benefits

SUPER BLUE BRAKE & CLUTCH FLUID provides:

- High wet boiling point
- Excellent thermal stability
- Excellent low- temperature stability
- Blue color for easy identification
- Good viscosity stability with various temperatures
- Compatibility with various rubber seals
- Excellent corrosion protection

Cautionary Note

SUPER BLUE BRAKE & CLUTCH FLUID should not be used where a mineral type fluid is specified (e.g. Citroen).

Compatibility

Is compatible with other DOT 3, SAE J1703 fluids and may be added as make up fluid. It can be used throughout mixed fleets thereby avoiding the need to order stock and use a special fluid for different brake systems.

Density at 20°C, kg/L, ASTM D4052	1.0415
Color	Blue
Wet Boiling Point, °C min, ASTM D 1120	155
Dry Boiling Point, °C, min, ASTM D 1120	230
Kinematic Viscosity @ 100°C, mm ² /s, ASTM D 445	2.21
Kinematic Viscosity @ -40°C, mm ² /s, ASTM D 445	1400
pH at 20°C, ASTM D1287	8.5
Product code	223003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Motor Cycle Oils

ENOC PROTEC 2T PREMIUM LS

Product Description

ENOC PROTEC 2T PREMIUM LS is a new generation synthetic blend two-stroke engine lubricant that has been developed to meet the environmental needs in countries where the reduction in exhaust smoke emissions from 2 stroke motor cycles is an important requirement. It has been formulated with a high proportion of synthetic base oil and low ash dispersants and detergents to provide low smoke exhaust emissions that are being introduced by the Governments of many countries to reduce city pollution. PROTEC 2T PREMIUM LS exceeds the latest JASO FC oil specification requirements for high performance two-stroke engines.

Applications

- Modern low emission two-stroke engines
- All makes of 2-cycle motor bikes from 50 to 500CC engine capacity
- Three wheeler light passenger vehicles used in city transportation
- Mopeds, scooters and all terrain two-stroke bikes
- Chainsaws, small generators and other portable implements

Performance Standards

PROTEC 2T PREMIUM LS meets and exceeds the following OEM and International specifications:

JASO (Japanese Automobile Standards Organisation.)	FC	API	TC
Thailand Industrial Standards Institute	(TISI)	ISO	EGC

Always follow equipment manufacturer's recommendation for required lubricant performance levels.

Benefits

PROTEC 2T PREMIUM LS provides:

- Reduced engine deposits and engine wear
- Reduced exhaust smoke
- Reduced friction
- Long service life
- Suitable for air cooled and water cooled 2-stroke engines
- Reduced environmental exhaust pollution
- Reduced tendency for pre-ignition
- Consistent power output
- Fuel saving benefits

MIXING Protec 2T PREMIUM LS with gasoline

PROTEC 2T PREMIUM LS mixes readily with gasoline as a "premix" and is equally suitable for metered lube injection systems.

The best advise on mixing is to:

- Fill the tank half with gasoline
- Pour in the correct amount of oil
- Add the remainder of gasoline
- Follow the manufacturers' recommendations for mixing oil to gasoline ratios up to 50:1

SAE Grade (J1536)	F/M2
Color	Green
Odor	Sweet Fruity Odor
Density at 15°C, kg/L, ASTM D4052	0.872
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	48.42
mm ² /s at 100°C	8.44
Flash Point, °C (PMCC), ASTM D93	112
Pour Point, °C, ASTM D97	-18
Sulphated Ash, m%, ASTM D874	0.09
Product code	220001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 2T SUPER OUTBOARD

Product Description

ENOC PROTEC 2T SUPER OUTBOARD is the latest generation of two-stroke engine lubricant for high performance outboard engines. It has been formulated with special base stocks that provide a low ash lubricant to help support the protection of lakes and oceans. PROTEC 2T SUPER OUTBOARD exceeds the latest NMMA TC-W3® certified oil specification requirements for high performance two-stroke engines.

Applications

- Modern low emission outboard two-stroke engines
- All makes of 2-cycle outboard motor engines
- Oil-injected engines
- Oil-gasoline premix engines up to gasoline to oil ratios 100 : 1

Performance Standards

PROTEC 2T SUPER OUTBOARD meets and exceeds the following OEM and International specifications:

NMMA (National Marine Manufacturers Association)
TC-W, TC-W II® TC-W3® certified

Always follow equipment manufacturer's recommendation for required lubricant performance levels.

Benefits

PROTEC 2T SUPER OUTBOARD provides:

- Reduced engine deposits
- Improved environmental exhaust pollution protection
- Reduced engine wear
- Minimised tendency for pre-ignition
- Trouble free operation
- Long engine service life
- Lower maintenance costs

PROTEC 2T SUPER OUTBOARD mixes readily with gasoline as a "premix" and is equally suitable for metered lube injection systems.

The best advise on mixing is to:

- Fill the tank half with gasoline
- Pour in the correct amount of oil
- Add the remainder of gasoline

SAE Grade (J1536)	F/M3
Color	Green
Density at 15°C, kg/L, ASTM D4052	0.8639
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	38.72
mm ² /s at 100°C	6.62
Flash Point, °C (PMCC), ASTM D93	84
Pour Point, °C, ASTM D97	-21
Sulfated Ash, m%, ASTM D874	0.589
Product code	220006

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC 2T SUPER PLUS

Product Description

ENOC PROTEC 2T SUPER PLUS is a high quality two-stroke engine oil that has been developed for small to medium size air-cooled two-stroke engines used in motor-cycles, scooters and three wheeler light passenger vehicles used in city traffic. Formulated with a modern low ash additive system which offers protection against scuffing of piston rings and liner wear by minimising piston ring deposits.

Applications

- All modern and older model two-stroke engines
- Three wheeler light passenger vehicles powered by two-stroke engine
- Chainsaws and in portable equipment powered by two-stroke engine

Performance Standards

PROTEC 2T SUPER PLUS meets and exceeds the following International specifications:

JASO	FB
API	TB

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

PROTEC 2T SUPER PLUS provides:

- Reduced engine deposit
- Reduced engine wear
- Reduced tendency for pre-ignition
- Reduced smoke and exhaust port fouling
- Consistent power output over the use of non API approved lubricants.
- Longer engine service life
- Assistance in engine maintenance costs

MIXING PROTEC 2T SUPER PLUS with gasoline

PROTEC 2T SUPER PLUS mixes readily with gasoline as a "premix" and is equally suitable for metered lube injection systems.

The best advise on mixing is to:

- Fill the tank half with gasoline
- Pour in the correct amount of oil
- Add the remainder of gasoline
- Follow the manufacturers' recommendations for mixing oil to gasoline ratios.

SAE (J 1536) fluidity/miscibility	F/M2
Kinematic Viscosity	
mm ² /s @ 40°C	59.4
mm ² /s @ 100°C	8.45
Flash Point, PMCC, °C	112
Sulphated Ash % m	0.05
Pour Point, °C	-18
Product Code	220004

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 2T SUPER



Product Description

ENOC PROTEC 2T SUPER is a high quality two-stroke engine oil that has been developed for small to medium size air-cooled two-stroke engines used in motor-cycles, scooters and three wheeler light passenger vehicles used in city traffic. Formulated with a modern low ash additive system which offers protection against scuffing of piston rings and liner wear by minimising piston ring deposits.

Applications

- All modern and older model two-stroke engines
- Three wheeler light passenger vehicles powered by two-stroke engine
- Chainsaws and in portable equipment powered by two-stroke engine

Performance Standards

PROTEC 2T SUPER meets and exceeds the following International specifications:

JASO	FB
API	TB

Always follow equipment manufacturer's recommendation for required lubricant performance levels.

Benefits

PROTEC 2T SUPER provides:

- Reduced engine deposit
- Reduced engine wear
- Reduced tendency for pre-ignition
- Reduced smoke and exhaust port fouling
- Mix PROTEC 2T SUPER with gasoline
- Consistent power output over the use of non API approved lubricants.
- Longer engine service life
- Assistance in engine maintenance costs

MIXING PROTEC 2T SUPER with gasoline

PROTEC 2T SUPER mixes readily with gasoline as a "premix" and is equally suitable for metered lube injection systems.

The best advise on mixing is to:

- Fill the tank half with gasoline
- Pour in the correct amount of oil
- Add the remainder of gasoline
- Follow the manufacturers' recommendations for mixing oil to gasoline ratios.

SAE (J 1536) fluidity/miscibility	F/M2
Kinematic Viscosity	
mm ² /s @ 40°C	57.2
mm ² /s @ 100°C	8.35
Flash Point, PMCC, °C	115
Sulphated Ash % m	0.03
Pour Point, °C	-18
Product Code	220003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 2T

Product Description

ENOC PROTEC 2T is an economical quality two-stroke engine oil that has been developed for small to medium size air-cooled two-stroke engines used in motor-cycles, scooters and three wheeler light passenger vehicles used in city traffic. Formulated with a modern low ash additive system which offers protection against scuffing of piston rings and liner wear by minimising piston ring deposits.

Applications

- All makes of two-stroke engines
- Three wheeler light passenger vehicles powered by two-stroke engine
- Chainsaws and in portable equipment powered by two-stroke engine

Performance Standards

PROTEC 2T meets and exceeds the following International specification:

API TA

Always follow equipment manufacturer's recommendation for required lubricant performance levels.

Benefits

PROTEC 2T provides:

- Minimum engine wear
- Control of engine deposits to prevent pre-ignition
- Consistent power output
- Longer engine service life

MIXING PROTEC 2T with petrol

PROTEC 2T mixes readily with petrol as a "premix" and is equally suitable for metered lube injection systems.

The best advise on mixing is to:

- Fill the tank half with petrol
- Pour in the correct amount of oil
- Add the remainder of petrol
- Follow the manufacturers' recommendations for mixing oil to petrol ratios.

Kinematic Viscosity	60.02
mm ² /s @ 40°C	8.46
mm ² /s @ 100°C	112
Flash Point, PMCC, °C	0.02
Sulphated Ash % m	-21
Pour Point, °C	220005
Product Code	

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC 4T X-TREME

Product Description

PROTEC 4T XTREME is a modern high performance fully synthetic gasoline motorcycle engine oil developed specifically to meet the special requirements of the latest high-performance air and Liquid cooled 4-stroke motorcycles. Oil is blended from superior quality synthetic base oils and specially selected performance additives to provide excellent protection for engine, gearbox and wet clutch used in 4-stroke motorcycles. It is formulated to provide high degree of reliability even under severe operating conditions. PROTEC 4T XTREME exceeds the requirements of API SP and JASO MA2 for 4-stroke motorcycle oils, it is also compatible for all motorcycles running on lead free gasoline and catalytic converters

Applications

- Air and Liquid cooled four-stroke motor cycle engines.
- Four-Stroke motor cycles with integral wet clutch operation
- Four-Stroke motor cycles with back torque limiters
- Four stroke motor cycle with exhaust catalytic converter

Performance Standards

PROTEC 4T XTREME meets and exceeds the following OEM and International Specifications:

API	SN
JASO	MA 2

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T X-TREME SN 5W-40 provides:

- Advanced "Thermo-Gard" formula that can help resist high-temperature oil degradation
- Outstanding protection against engine and transmission wear
- Exceptional driving comfort due to optimum friction levels leading to smooth clutch engagements



SAE Grade	5W-40
Kinematic Viscosity	
mm ² /s at 40°C	88
mm ² /s at 100°C	14
Viscosity Index	166
Flash Point, COC, °C	226
Pour Point, °C	-42
Phosphorus % Mass, Min.	0.08
Product Code	220067

Technical Data*

ENOC PROTEC 4T ULTRA PLUS

Product Description

ENOC PROTEC 4T ULTRA PLUS 10W-40 is a special formulation using semi-synthetic lubricant base oil technology suitable for modern four stroke motor cycle engines oil exceeding the performance specification API SN. Developed to provide maximum protection for modern four stroke motor cycle engines. It is available in SAE 10W-40 viscosity grade to provide fuel saving and to meet long drain requirements. Compatible for all motor cycles running on lead free gasoline.

Applications

- High performance normally aspirated and turbocharged gasoline engines
- Four stroke motorcycle engines where motor oils are recommended
- Latest model Japanese and European four stroke motor cycle engines

Performance Standards

PROTEC 4T ULTRA PLUS 10W-40 meets and exceeds the following International specifications:

API	SN
JASO	MA 2

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T ULTRA PLUS 10W-40 provides:

- The highest level of engine protection for all manufacturers
- Extended engine life
- Superior resistance to oil thickening
- Excellent protection against wear
- Suitable for low emission engines
- Excellent low temperature easy starting
- Long drain interval, low oil consumption
- Allows for smooth gear changes



SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8710
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	92.0
mm ² /s at 100°C	13.8
Flash Point, °C (COC), ASTM D92	228
Pour Point, °C, ASTM D97	-33
CCS Viscosity, mPa.s, ASTM D 5293	64.10@-25°C
Product code	220032

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC 4T SUPER POWER

Product Description

ENOC PROTEC 4T SUPER POWER 20W-50 SM is extra high-performance motor oil designed to provide high level of protection in motor cycle gasoline engines. It is formulated from hydrotreated mineral oils and a superior additive package to provide outstanding overall engine cleanliness and protection against wear at high temperatures and under severe conditions. Excellent fluidity at low temperatures which ensures starting in cold weather and low volatility contributes to low consumption. It is available in SAE 20W-50 viscosity grade and exceeds the latest API service classification SM and JASO MA2. Well suited for 4 stroke motor cycle engine, clutch and gear (ECG).

Applications

All modern 4 stroke motor cycle gasoline engine

Performance Standards

PROTEC SUPER PLUS meets and exceeds the following International specifications:

API	SM
JASO	MA2
Kawasaki	4 stroke motor cycle engines

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC SUPER Plus provides:

- The highest level of engine protection
- Extended engine life
- Superior resistance to oil thickening
- Excellent protection against wear
- Low oil consumption and engine deposits
- Easy all year round starting



SAE Grade	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8780
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	161.0
mm ² /s at 100°C	18.60
Flash Point,°C (COC), ASTM D92	236
Pour Point,°C, ASTM D97	-27
CCS Viscosity, mPa.s, ASTM D 5293	8910@-15°C
Product code	220028

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T PREMIUM



Product Description

ENOC PROTEC 4T PREMIUM is a modern high technology based gasoline engine oil exceeding the latest API SL performance specification. Developed to provide maximum protection for use in modern 4 stroke air cooled motor cycles including low emission engines and high performance vehicles. It is suitable for all types of driving conditions (city, highway and harsh) and is available in SAE 10W- 30, SAE 10W- 40, SAE 15W- 40 & SAE 20W- 50 viscosity grade, to meet market conditions. Compatible for all motor cycles running on lead free gasoline and catalytic converters.

Applications

- Four-Stroke motor cycles with integral wet clutch operation
- Particularly suitable for Japanese high performance four-stroke motor cycles
- Air cooled four-stroke motor cycle engines
- Water cooled four-stroke motor cycles engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T PREMIUM meets and exceeds the following International specifications:

API	SL
JASO	MA2

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T PREMIUM provides:

- The highest level of engine protection for all manufacturers
- Extended engine life
- Superior resistance to oil thickening
- Excellent protection against wear
- Low oil consumption and engine deposits
- Easy all year round starting



SAE Grade	10W-30	10W-40	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8620	0.8710	0.8768	0.8865
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	69.14	92.8	110.8	170
mm ² /s at 100°C	10.67	13.73	15.0	18.65
Flash Point,°C (COC), ASTM D92	212	228	234	240
Pour Point,°C, ASTM D97	-36	-33	-30	-27
CCS Viscosity, mPa.s, ASTM D 5293	6425@-25°C	6466 @-25°C	6837@-20°C	8988@-15°C
Product code	220027	220023	220029	220017

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T SCOOTER

Product Description

ENOC PROTEC 4T SCOOTER 10W-40 is a modern Synthetic blend technology engine oil ideal for high performance Scooter engines exceeding the latest API SL performance specification. Developed to provide maximum protection for use in Scooter engines that requires to deliver high power and high torque under stressful conditions. Protec Scooter 4T is suitable for all types of driving conditions (city, highway and harsh) and is available in SAE 10W-40 viscosity grade to meet market conditions. Compatible for all Scooter engines running on lead free gasoline and catalytic converters.

Applications

- For high performance air and water cooled four stroke Scooter engines including those models with integral gear boxes and wet clutches
- One oil for engine, clutch and gears and its excellent performance in ECG
- Suitable for 4 stroke scooters of all manufacturers where API SL or below and JASO MB specifications are recommended
- Strictly not to be used for wet clutch motor cycle engines.

Performance Standards

PROTEC 4T SCOOTER 10W-40 meets and exceeds the following International specifications: Exceeds the requirements of all Japanese, European, Indian and Chinese Scooter manufacturers.

API	SL
JASO	MB

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T SCOOTER 10W-40 provides:

- Provides excellent and smooth driving comfort
- Extended engine life
- Superior resistance to oil thickening
- Excellent protection against wear
- Low oil consumption and engine deposits
- Protection against rust and corrosion



SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8610
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	92.80
mm ² /s at 100°C	13.95
Flash Point, °C (COC), ASTM D92	238
Pour Point, °C, ASTM D97	-33
CCS Viscosity, mPa.s, ASTM D 5293	6215@-25°C
Product code	220026

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T FAST

Product Description

ENOC PROTEC 4T FAST 20W-40 is a high quality synthetic blend gasoline engine oil specifically formulated for Four-Stroke motor cycles to provide outstanding durable protection under severe high torque and high stress conditions. Under these conditions motorcycle engines operate at extremely high temperature causing viscosity and thermal breakdown of motor oil. Protec 4T FAST provides maximum protection against viscosity and thermal breakdown. It is available in SAE 20W-40 viscosity grade and meeting the API SJ specification. In addition it meets the new JASO MA2 specifications. An oil well suited for 4 stroke motor cycle engine, clutch and gear (ECG).

Applications

- Four-Stroke motor cycles with integral wet clutch operation
- Particularly suitable for Japanese high performance four-stroke motor cycles
- Air cooled four-stroke motor cycle engines
- Water cooled four-stroke motor cycles engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T FAST 20W-40 meets and exceeds the following International specifications:

API	SJ
JASO	MA 2
Kawasaki	

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T FAST 20W-40 provides:

- Deliver superior engine wear protection and high film strength
- Protec ring sticking and build up of harmful deposits
- Quick Starting
- Low Oil consumption



SAE Grade	20W-40
Density at 15°C, kg/L, ASTM D4052	0.8719
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	122.1
mm ² /s at 100°C	14.05
Flash Point, °C (COC), ASTM D92	236
Pour Point, °C, ASTM D97	-27
CCS Viscosity, mPa.s, ASTM D 5293	8354 @-15°C
Product code	220020

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T SUPER

Product Description

ENOC PROTEC 4T SUPER 10W-40 is a modern high technology gasoline engine oil specifically formulated for Four-Stroke motor cycles in SAE 10W- 40 viscosity grade and meeting the API SJ specification. In addition, it meets the new JASO MA2 specification which has been developed to meet the requirements for the engine and the wet clutch lubrication to provide smooth gear change operations.

Applications

- Four-Stroke motor cycles with integral wet clutch operation
- Particularly suitable for Japanese high performance four-stroke motor cycles
- Air cooled four-stroke motor cycle engines
- Water cooled four-stroke motor cycles engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T SUPER 10W-40 meets and exceeds the following International specifications:

API	SJ
JASO	MA2



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T SUPER 10W-40 provides:

- Extended life by the use of special additive technology for engine and wet clutch operation
- Smooth gear changes by the use of special lubricant friction characteristics
- Reduced engine repairs due to the maintenance of cleaner engine parts
- Superior resistance to oil thickening and oxidation
- Excellent protection against wear
- Low engine deposits
- Easy all year round starting

SAE Grade	10W-40
Density at 15°C, kg/L, ASTM D4052	0.8728
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	93.0
mm ² /s at 100°C	13.87
Flash Point,°C (COC), ASTM D92	228
Pour Point,°C, ASTM D97	-27
CCS Viscosity, mPa.s, ASTM D 5293	6654 @-25°C
Product code	220024

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T SUPER SG

Product Description

ENOC PROTEC 4T SUPER SG is a modern high technology gasoline engine oil specifically formulated for Four-Stroke motor cycles available in SAE 10W-30, 15W-40 and 20W-50 viscosity grade and meeting the API SG specification. In addition, it meets the new JASO MA2 specification which has been developed to meet the requirements for the engine and the wet clutch lubrication to provide smooth gear change operations.

Applications

- Four-Stroke motor cycles with integral wet clutch operation
- Particularly suitable for Japanese high performance four-stroke motor cycles
- Air cooled four-stroke motor cycle engines
- Water cooled four-stroke motor cycle engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T SUPER meets and exceeds the following International specifications:

API	SG
JASO	MA 2



Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T SUPER SG provides:

- Extended life by the use of special additive technology for engine and wet clutch operation
- Smooth gear changes by the use of special lubricant friction characteristics
- Reduced engine repairs due to the maintenance of cleaner engine parts
- Superior resistance to oil thickening and oxidation
- Excellent protection against wear
- Low engine deposits
- Easy all year round starting

SAE Grade	15W-40	20W-50
Density at 15°C, kg/L, ASTM D4052	0.8780	0.8852
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	104.9	172
mm ² /s at 100°C	14.5	18.89
Flash Point,°C (COC), ASTM D92	228	236
Pour Point,°C, ASTM D97	-27	-24
CCS Viscosity, mPa.s, ASTM D 5293	6687@-20°C	9025@-15°C
Product code	220016	220010

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PROTEC 4T MAX

Product Description

ENOC PROTEC 4T MAX is a modern high technology gasoline engine oil specifically formulated for Four-Stroke motor cycle engines available in popular multigrades and meeting the API SF specification. ENOC PROTEC 4T MAX has been developed to meet the requirements for the engine and the wet clutch lubrication to provide smooth gear change operations.

Applications

- Four-Stroke motor cycles with integral wet clutch operation
- Particularly suitable for Japanese high performance four-stroke motor cycles
- Air cooled four-stroke motor cycle engines
- Water cooled four-stroke motor cycles engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T MAX meets and exceeds the following International specifications:

API SF

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T MAX provides:

- Extended life by the use of special additive technology for engine and wet clutch operation
- Smooth gear changes by the use of special lubricant friction characteristics
- Reduced engine repairs due to the maintenance of cleaner engine parts
- Superior resistance to oil thickening and oxidation
- Excellent protection against wear
- Low engine deposits
- Easy all year round starting



SAE Grade	20W-40	20W-50	40
Color, ASTM D 1500	Red	Red	L 3.0
Density at 15°C, kg/L, ASTM D4052	0.8810	0.8910	0.8882
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	132.9	170.6	145
mm ² /s at 100°C	14.93	18.82	14.5
Flash Point, °C (COC), ASTM D92	238	240	248
Pour Point, °C, ASTM D97	-27	-27	-15
CCS Viscosity, mPa.s, ASTM D 5293	8426 @-15°C	9826 @-15°C	N/A
Product code	220009	220011	220015

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PROTEC 4T

Product Description

ENOC PROTEC 4T is a modern high technology gasoline engine oil formulated for Four-Stroke motor cycle engines available in monogrades and meeting the API SE specifications.

Applications

- Four-Stroke motor cycles
- Suitable for older makes of four-stroke motor cycles
- Air cooled or water cooled motor cycle engines
- Portable small four-stroke gasoline engine generator sets

Performance Standards

PROTEC 4T meets and exceeds the following International specifications:

API SE

Always follow equipment manufacturer's recommendations for required lubricant performance level and oil drain intervals.

Benefits

PROTEC 4T provides:

- Smooth gear changes
- Reduced engine repairs due to the maintenance of cleaner engine parts
- Superior resistance to oil thickening and oxidation
- Excellent protection against wear
- Low engine deposits
- Reliable clutch operation



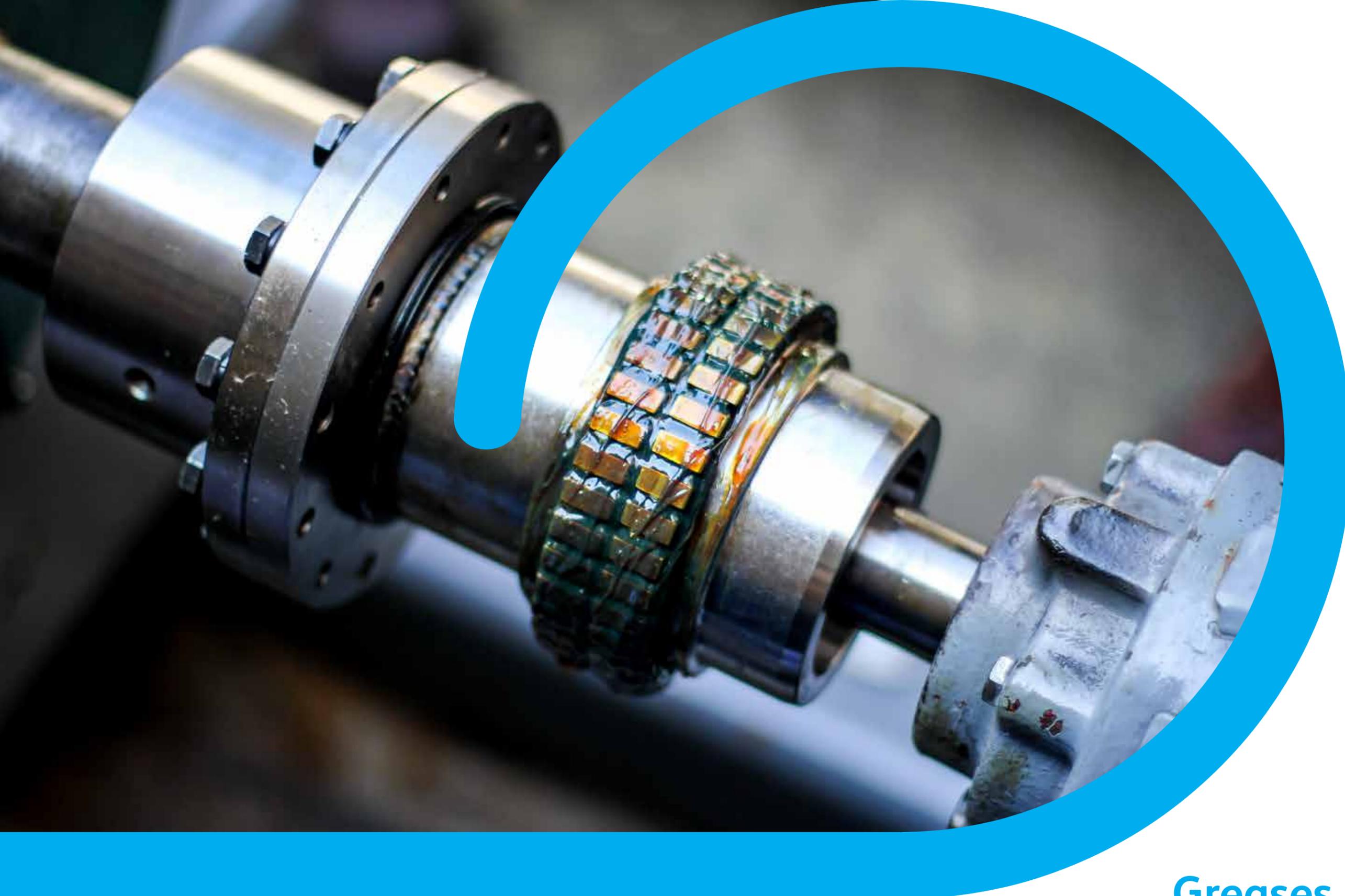
SAE Grade	40
Density at 15°C, kg/L, ASTM D4052	0.8880
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	150.0
mm ² /s at 100°C	14.75
Flash Point, °C (COC), ASTM D92	248
Pour Point, °C, ASTM D97	-15
Product code	220014

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.





Greases

ENOC VERRON TAC

Product Description

ENOC VERRON TAC is a high performance lithium complex grease with extreme pressure properties forfeited with 3% Moly to protect shock load operating conditions, developed for off highway construction equipment bearing lubrication where they can operate at high loads. It has excellent load carrying and anti-wear properties. It contains an effective oxidation and rust inhibitor and has excellent resistance to water wash-out, properties that are important performance requirements for off highway bearing lubrication.

Applications

- Off highway construction equipment
- Heavy duty vehicles
- Excellent high temperature control under severe breaking
- Suitable for heavily loaded bearings
- General mobile equipment
- Effective temperature range -18°C to 163°C

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON TAC provides:

- Protects bearings under shock load operations
- Excellent resistance to water wash-out
- Suitability in high temperature applications
- Good pumpability
- Good mechanical stability



ENOC VERRON LX

Product Description

ENOC VERRON LX are high performance lithium complex greases with extreme pressure properties, developed for automotive wheel bearing lubrication where they can operate at high temperatures. They have excellent load carrying and anti-wear properties in both steel-on-steel and steel-on-bronze applications. It is a dark blue color grease containing extreme pressure, oxidation and rust inhibitor additives and having low wash-out properties that are important performance requirements for wheel bearing lubrication.

Applications

- Automotive vehicles
- Excellent high temperature control under severe breaking
- Suitable for heavily loaded bearings
- General mobile equipment
- Effective temperature range -15°C to 150°C

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON LX provides:

- Excellent extreme pressure properties
- Resistance to water wash-out
- Suitability in high temperature applications
- Good pumpability
- Good mechanical stability



NLGI Consistency	2
Soap Type	Lithium Complex
Texture	Buttery
Base Oil	Mineral
Color	Grey
Kinematic Viscosity, mm ² /s at 40° C, ASTM D445	350
Kinematic Viscosity, mm ² /s at 100° C, ASTM D445	24
Cone Penetration, worked @ 25° C, 0.1 mm, ASTM D217	275
Dropping Point, C, ASTM D566	260
Operating temperature range C	-18 to 163
Product code	224029

Technical Data*

NLGI Consistency	2	3
Soap Type	Lithium Complex	Lithium Complex
Texture	Buttery	Buttery
Base Oil	Mineral	Mineral
Color	Dark Blue	Dark Blue
Kinematic Viscosity, mm ² /s at 40° C, ASTM D445	170	170
Kinematic Viscosity, mm ² /s at 100° C, ASTM D445	16	16
Cone Penetration, worked @ 25° C, 0.1 mm, ASTM D217	280	235
Dropping Point, C, ASTM D566	260	260
Four Ball Weld Load, kgf, ASTM D2596	250	250
Operating temperature range C	-15 to 150	-15 to 150
Product code	224011	224012

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VERRON MOLY EP

Product Description

ENOC VERRON MOLY EP is a high quality lithium NLGI No. 2 grease containing 3% molybdenum disulphide filler and Extreme Pressure properties. The fine grade molybdenum disulphide used in the manufacture of this grease has an extremely low particle size (< 2 microns) which provides good lubricating properties under extreme load conditions. It has mechanical stability, high resistance to water washout, oxidation and corrosive attack.

Applications

- Heavy transport trucks
- Off-road construction equipment
- Mobile quarrying and mining equipment
- Agricultural tractors and farming equipment
- Chassis lubrication and universal joints
- Industrial applications where No. 2 molybdenum disulphide grease is recommended

Recommendations

VERRON MOLY EP is suitable for conditions where bearings are subjected to heavy shock loading and designed for extended intervals between re-lubrication. In addition, it has high resistance to oxidation and water washout. It has good mechanical stability in order to retain its lubricating properties over long periods of heavy use.

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON MOLY EP provides:

- Effective EP and boundary lubrication which reduces component wear under heavy load conditions
- Excellent lubrication and protection under shock loading conditions
- Extended intervals between re-lubrication
- High resistance to water wash-out
- Suitability for use up to 120°C



NLGI Consistency	2
Soap Type	Lithium
Texture	Buttery
Base Oil	Mineral
Color	Dark Grey
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	200
Kinematic Viscosity, mm ² /s at 100°C, ASTM D445	17.6
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	280
Dropping Point, °C, ASTM D566	202
Timken OK Load, Kg, ASTM D2509	22
Four Ball Weld Load, kgf, ASTM D2596	250
Operating temperature range °C	-25 to 120
Product code	224006

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VERRON EP

Product Description

ENOC VERRON EP greases have been developed for automotive applications where the benefits of lithium base thickened greases have excellent load carrying capacity and forfeited with extreme pressure additives to protect both plain and anti-friction bearings applications. It contains an extreme pressure, oxidation and rust preventive additives to enhance their performance in the wide range of applications.

Applications

- Automotive vehicles
- General construction equipment
- Heavy earthmoving vehicles, mobile quarry equipment and mining
- Agricultural equipment
- Chassis grease lubrication points
- Wheel Bearings

Recommendations

Many plain and rolling bearings are subjected to heavy shock loading conditions where conventional greases may not give adequate protection. VERRON EP minimizes wear under these loading conditions and resists water wash-out, especially where equipment is constantly working under damp or very wet conditions. It is also effective over a wide temperature range and protects against rust and corrosion. Where equipment is lubricated by centralized grease systems, VERRON EP offers excellent pumpability characteristics and does not cause blockages in the distribution system.

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON EP provides:

- Excellent extreme pressure properties
- Resistance to water wash-out
- Suitability in wide temperature range
- Good pumpability
- Good mechanical stability
- Multifunctional use

NLGI Consistency	0	1	2	3
Soap Type	Lithium	Lithium	Lithium	Lithium
Texture	Buttery	Buttery	Buttery	Buttery
Base Oil	Mineral	Mineral	Mineral	Mineral
Color	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	200	200	200	200
Kinematic Viscosity, mm ² /s at 100°C, ASTM D445	17.6	17.6	17.6	17.6
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	370	326	280	236
Dropping Point, °C, ASTM D566	186	196	202	202
Timken OK Load, Kg, ASTM D2509	20	20	22	25
Four Ball Weld Load, kgf, ASTM D2596	250	250	250	250
Operating temperature range °C	-30 to 120	-25 to 120	-25 to 120	-20 to 120
Product code	224007	224010	224002	224003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VERRON EP PLUS

Product Description

ENOC VERRON EP PLUS grease have been developed for automotive applications where the benefits of lithium base thickened greases have excellent extreme pressure, load carrying and anti-wear properties in both steel-on-steel and steel-on-bronze applications. It is red color and contains an extreme pressure, oxidation and rust preventive additives to enhance their performance in the wide range of applications.

Applications

- Automotive vehicles
- General construction equipment
- Heavy earthmoving vehicles, mobile quarry equipment and mining
- Agricultural equipment
- Chassis grease lubrication points
- Effective temperature range

Recommendations

Many plain and rolling bearings are subjected to heavy shock loading conditions where conventional greases may not give adequate protection. VERRON EP PLUS minimizes wear under these loading conditions and resists water wash-out, especially where equipment is constantly working under damp or very wet conditions. It is also effective over a wide temperature range and protects against rust and corrosion.

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON EP PLUS provides:

- Excellent extreme pressure properties
- Resistance to water wash-out
- Suitability in wide temperature range
- Good pumpability
- Good mechanical stability
- Multifunctional use

NLGI Consistency
2

NLGI Consistency	2
Soap Type	Lithium
Texture	Buttery
Base Oil	Mineral
Color	Red
Kinematic Viscosity, mm ² /s at 40 °C, ASTM D445	200
Kinematic Viscosity, mm ² /s at 100 °C, ASTM D445	17.6
Cone Penetration, worked @ 25 °C, 0.1 mm, ASTM D217	280
Dropping Point, °C, ASTM D566	202
Timken OK Load, Kg, ASTM D2509	22
Four Ball Weld Load, kgf, ASTM D2596	250
Operating temperature range °C	-25 to 120
Product code	224009

Technical Data*

ENOC VERRON CS

Product Description

ENOC VERRON CS are lithium base semi-fluid greases for use in centralized vehicle chassis lubrication systems. These greases have extreme pressure properties and a low viscosity base oil to provide good pumpability. It has a carefully balanced additive system to impart protection against wear and corrosion and is resistant to water spray.

Applications

- Automotive vehicles
- General construction equipment
- Heavy earthmoving vehicles, mobile quarry equipment and mining
- Agricultural equipment
- Chassis grease lubrication points
- Effective temperature range

Recommendations

Designed for vehicles and mobile equipment that have built-in centralized lubrication systems that require a mobile and pumpable EP grease that will operate over long small bore piping to reduce the vehicle maintenance down times. A mechanically operated grease pump operating with Verron CS greases will ensure the right quantity at the right time interval that will be provided to the lubrication points. This will ensure efficient use of grease and minimize the chances of over greasing or missed grease application that might cause accelerated wear.

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON CS provides:

- Excellent extreme pressure properties
- Resistance to water wash-out
- Suitability in wide temperature range
- Good pumpability
- Good mechanical stability
- Saving in grease and correct greasing



NLGI Consistency
00

NLGI Consistency	00
Soap Type	Lithium
Texture	Buttery
Base Oil	Mineral
Color	Dark Brown
Kinematic Viscosity, mm ² /s at 40 °C, ASTM D445	45
Kinematic Viscosity, mm ² /s at 100 °C, ASTM D445	6.5
Cone Penetration, worked @ 25 °C, 0.1 mm, ASTM D217	410
Dropping Point, °C, ASTM D566	140
Operating temperature range °C	-30 to 120
Product code	224008

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VERRON MP

Product Description

ENOC VERRON MP is a high quality, lithium grease formulated with high viscosity base oils, suitable for a wide range of applications where specialist EP lubricants are not required. It is available in NLGI 2 and 3 consistencies. They are formulated for use in automotive equipment and general lubrication for use in temperatures up to 120oC. VERRON MP Grease is a proven performance is with high viscosity base oil in combination with anhydrous calcium thickener, rust and oxidation inhibitors.

Applications

- General purpose plain and anti-friction applications
- Centralized grease systems (NLGI 2)
- General industrial ball and roller bearings

Recommendations

VERRON MP minimizes wear under normal bearing load conditions and resists water wash-out. It is also effective over a wide temperature range and protects against rust and corrosion. Where vehicles are lubricated by centralized grease systems, VERRON MP offers excellent pumpability characteristics.

Always follow equipment manufacturer’s recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON MP provides:

- Resistance to water washout
- Suitability in wide temperature ranges
- Good pumpability
- Good mechanism stability
- Multifunctional use



NLGI Consistency	2	3
Soap Type	Lithium	Lithium
Texture	Buttery	Buttery
Base Oil	Mineral	Mineral
Color	Amber	Amber
Kinematic Viscosity, mm ² /s at 40 °C, ASTM D445	200	200
Kinematic Viscosity, mm ² /s at 100 °C, ASTM D445	17.6	17.6
Cone Penetration, worked @ 25 °C, 0.1 mm, ASTM D217	285	236
Dropping Point, °C, ASTM D566	202	202
Copper Corrosion 24H/100°C, ASTM D4048	1A	1A
Operating temperature range °C	-25 to 120	-20 to 120
Product code	224004	224005

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VERRON MWR

Product Description

ENOC VERRON MWR is a high-performance calcium grease with extreme pressure properties developed for wire rope and open gear Marine applications where it has good tackiness capabilities. It has excellent resistance to water wash-out due to its strong adhesion properties to prevent the loss of coating or “fling-off”. It has excellent load carrying properties for all marine environments due to the micro graphite additives technology that forms a protective film in dry lubrication conditions.

Applications

- General marine open gears
- Marine wire ropes
- Marine cables
- Low speed, high load applications
- Effective temperature range

Always follow equipment manufacturer’s recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON MWR provides:

- Excellent load carrying properties
- High Resistance to water wash-out
- Wide range of applications
- No harmful constituents
- Excellent corrosion protection



NLGI Consistency	2
Soap Type	Calcium
Color	Black
Cone Penetration, worked @ 25 °C, 0.1 mm, ASTM D217	280
Dropping Point, °C, ASTM D566	102
Operating temperature range °C	-20 to 70
Product code	224027

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VERRON EM

Product Description

ENOC VERRON EM greases have been developed for electric motor bearings applications where the benefits of lithium base thickened greases have excellent stay in place capabilities. It contains an effective oxidation and rust inhibitor and is an ideal multipurpose grease suitable for use in a wide range of operating conditions.

Applications

- Electric motors
- High and Medium speed industrial ball and roller bearings
- General industrial applications where sliding speeds are moderate and EP characteristics are not required
- Effective temperature range

Recommendations

Many electric motor bearings are subjected to speed loading conditions where conventional greases may not give adequate protection. VERRON EM minimizes wear under these loading conditions and resists throw off, especially where equipment is constantly working under high speed conditions. It is also effective over a wide temperature range and protects against rust and corrosion.

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON EM provides:

- Resistance to throw off
- Suitability in wide temperature range
- Good pumpability
- Good mechanical stability
- Multifunctional use

NLGI Consistency	3
Soap Type	Lithium
Texture	Buttery
Base Oil	Mineral
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	100
Kinematic Viscosity, mm ² /s at 100°C, ASTM D445	11.1
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	235
Dropping Point, °C, ASTM D566	195
Operating temperature range °C	-30 to 140
Product code	224015

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VERRON L-MP

Product Description

ENOC VERRON L-MP 2 is specially formulated grease with translucent appearance and smooth homogenous buttery structure. It is lithium based grease for multipurpose applications, developed with synthetic technology where it can operate at high temperatures as well as low temperatures and at high speeds. It has excellent load carrying, high dropping point and mechanically shear stable properties. It contains an effective oxidation and rust inhibitor and has excellent resistance to water wash-out which is an important performance requirement for wheel bearing lubrication.

Applications

- Automotive wheel bearings with proven 50,000 km service application
- Excellent for high temperature applications
- Suitable for plain & rolling bearings
- Effective temperature range

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

VERRON L-MP 2 provides:

- Distinctive translucent colour and texture
- Resistance to water wash-out
- Suitability in high temperature applications
- Good pumpability
- Excellent mechanical stability

NLGI Consistency	2
Soap Type	Lithium
Texture	Buttery
Base Oil	Mineral
Color	Light Yellow
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	200
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	280
Dropping Point, °C, ASTM D566	214
Operating temperature range °C	-30 to 130
Product code	224013

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC KRASOUS BMS

Product Description

ENOC KRASOUS BMS is a Bentonite clay grease with molybdenum disulphide to provide lubrication to slow moving heavy loaded industrial plain bearings that operate under shock loads. KRASOUS BMS is a premium quality, extreme pressure grease that can operate in high temperature conditions.

Applications

- Lubrication of slow moving mechanism subjected to high operating temperatures
- High peak temperature operations up to 230oC providing frequent re-greasing is applied
- Heavy or shock loaded plain bearings as in sugar mills, cement works and steel plants
- Suitable in working conditions where there is a corrosive atmosphere

Recommended not to be mixed or diluted with conventional greases, make sure applications are thoroughly cleaned before Krasous BMS is used

Performance Standards

ISO 6743-9 L-AEEA 2
DIN 51502 MF2P - 15

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

KRASOUS BMS provides:

- Excellent extreme pressure properties
- Excellent resistance to shock loads
- Suitability in high temperature condition
- Very good anti-wear properties
- Excellent mechanical stability
- Multifunctional use

NLGI
Consistency

1
2
3

Technical Data*

NLGI Consistency	1	2	3
Color	Anthracite	Anthracite	Anthracite
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	320 - 330	270 - 280	225 - 245
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	110	110	110
Dropping Point, °C, ASTM D566	>300	>300	>300
Four Ball Weld Load, kgf, ASTM D2596	200	200	200
Operating temperature range °C	-15 to 200	-15 to 215	-15 to 215
Product code	225003	225002	225004

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC KRASOUS LC EP 2

Product Description

ENOC KRASOUS LC EP 2 is a lithium/calcium complex grease that has been developed for heavy duty automotive and industrial applications and in particular where there are heavy or shock loaded bearings. KRASOUS LC EP 2 is a premium quality, multipurpose extreme pressure grease that contains effective oxidation and rust inhibitors.

Applications

- Heavy loaded automotive wheel rolling bearings
- Heavy or shock loaded bearings in general construction and quarrying equipment
- Heavy duty plain and rolling bearings operating under severe loads and water presence
- Multipurpose applications, universal joints, chassis and various shock loaded applications in transport and construction equipment
- Industrial applications that require NLGI EP 2 grease for highly loaded bearings and high temperature applications
- Effective temperature range -20 to 160°C

Performance Standards

KRASOUS LC EP 2 meets the following specifications:

ISO 6743-9: L-XAEAB 2/3

Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Recommendations

Many plain and rolling bearings are subjected to heavy shock loading conditions where conventional greases may not give adequate protection. KRASOUS LC EP 2 minimizes wear under these loading conditions and resists water wash-out. It is also effective over a wide temperature range and protects against rust and corrosion. Always follow equipment manufacturer's recommendation for required grease performance and re-lubrication periods.

Benefits

KRASOUS LC EP 2 provides:

- Excellent extreme pressure properties
- Resistance to water wash-out
- Suitability in wide temperature range
- Good pumpability
- Good mechanical stability
- Multifunctional use



NLGI
Consistency

2

Technical Data*

NLGI Consistency	2
Color	Green
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	280
Kinematic Viscosity, mm ² /s at 40°C, ASTM D445	350
Dropping Point, °C, ASTM D566	>260
Four Ball Weld Load, kgf, ASTM D2596	380
Anti-rust SKF-EMCOR DIN 51802, NFT 60-135	0-0
Operating temperature range °C	-20 to 160
Product code	225001

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ARMOUREX GMO

Product Description

ENOC ARMOUREX GMO is a heavy duty adhesive semi fluid grease based on calcium sulphonate complex grease technology with graphite and molybdenum disulphide solid lubricants to provide extreme pressure properties and is suitable for a wide range of Industrial, marine and mobile plant lubrication applications. It is formulated to provide maximum protection against gear wear, pitting and provide improved resistance to rust and corrosion. It also has water displacement properties. It has high film strength providing a tough and tenacious lubricant film to withstand wide ambient temperature changes.

Applications

- Open gears, wire ropes, winches and chains, conveyors working in severe operations
- Wire ropes in elevators, overhead cranes, drag lines, mobile equipment
- Primarily developed for single and double pinion kiln and mill drives in cement and heavy industries
- Used in steel mills, mines and quarries, cement works, sugar mills
- Marine and off-shore installations
- It can be applied by brushing, swabbing, but best via pumping equipment through spray nozzle designed for greases.

Performance Standards

ARMOUREX GMO meets the following specifications:

ISO 6743-9: L-XBFHB 0
DIN 51502: OGPFOR-25



Benefits

ARMOUREX GMO provides:

- Excellent protection against gear and surface wear
- Good rust and corrosion protection
- Easy and safe application
- Excellent thermal stability
- High film strength due to extreme pressure and anti-wear properties
- High resistance to extreme weather conditions and water resistance including sea water

NLGI Grade	0
Soap Type	Calcium Sulphonate
Color	Dark Grey
Kinematic Viscosity of Base oil, mm ² /s at 40°C, ASTM D445	695
Operating temperature range °C	-20 to 180
Dropping Point, °C, ASTM D566	>300
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	370 - 385
FZG, Fail Load Stage, DIN 51354	>12
Four Ball Weld Load, DIN 51350-4	750 to 800
Anti-rust SKF-EMCOR DIN 51802, NFT 60-135	0 - 0
Product code	224023

Technical Data*

ENOC ARMOUREX SM

Product Description

ENOC ARMOUREX SM is a special bitumen base with very heavy viscous oils that is suitable as a heavy duty adhesive open gear lubricant for use in sugar mill applications where there is a need for the lubrication of heavily loaded slow speed gears and bearings. It has special Enhances extreme pressure and anti-wear properties. It is formulated to provide maximum protection against gear wear and pitting that can occur in the processing of sugar cane. It has high film strength providing a tough and tenacious lubricant film to withstand wide ambient temperature changes.

Applications

- Open gears working in severe operations
- In particular in sugar mill equipment
- Sugar mill oil lubricated plain bearings
- Sugar mill oil lubricated roller pinion gears and sprockets
- It can be applied by brushing, swabbing, but best via pumping equipment by spray or in oil bath application.

Performance Standards

ARMOUREX SM meets the following specification:

ISO 6743-6 Cat: CKJ



Benefits

ARMOUREX SM provides:

- Excellent protection against gear and surface wear
- Good rust and corrosion protection
- Easy and safe application
- Excellent resistance to water wash out and cane juice
- High film strength due to extreme pressure and anti-wear properties
- High resistance to extreme weather conditions

ISO Grade	6800
Density at 15°C, kg/L, ASTM D4052	0.972
Kinematic Viscosity of Base oil, mm ² /s at 40°C, ASTM D445	6800
Flash Point, COC, °C, ASTM D 92	226
Timken OK Load, Kg, ASTM D2509	45
Four Ball Weld Load, DIN 51350-4	400
Product code	224022

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ARMOUREX SYN CHAIN LUBRICANT NF

Product Description

ENOC ARMOUREX SYN CHAIN LUBRICANT NF is formulated from high quality base stocks with antiwear additives package to adhere to contact surfaces and prevent throw off or dripping. It is specially designed for the chain applications where oil sticking is necessary.

Applications

- Furnace chains
- Cement conveyors and chins
- Textile mills
- Ceramic, baking, etc.
- H1 lubricant from incidental food contact
- General Chains and sprockets

Recommendations

ENOC ARMOUREX SYN CHAIN LUBRICANT NF has excellent anitwear, rust and oxidation inhibition. Its high quality base stokes have a reduced volatile and wider temperature operating range. It can be applied by brushing, swabbing, dipping and spraying.

Performance Standards

ENOC ARMOUREX SYN CHAIN LUBRICANT NF is nontoxic and suitable for food processing facilities meeting the NFS H1 product requirement.

Benefits

ENOC ARMOUREX SYN CHAIN LUBRICANT NF provide:

- Longer chain and sprocket life due to its oxidation stability
- Low volatility allows excellent oil control and reduced maintenance
- Good corrosion protection enhance reliability and reduce down time
- NSF H1 compatible for use with food processing environment



ISO Grade	150
Density at 15° C, kg/L, ASTM D4052	0.8368
Kinematic Viscosity of Base oil, mm ² /s at 40°C, ASTM D445	140.8
Kinematic Viscosity of Base oil, mm ² /s at 100°C, ASTM D445	21.2
Viscosity Index, ASTM D2270	176
Flash Point, COC, °C, ASTM D 92	274
Fire Point, °C, ASTM D 92	276
Pour Point, °C, ASTM D 97	-48
Product code	224028

Technical Data*

ENOC ARMOUREX RG (Ropes & Gears)

Product Description

ENOC ARMOUREX RG is a stable, fibrous and tacky grease developed for a wide range of Industrial and Mobile plant lubrication applications. They are formulated with calcium thickener, premium quality base oils and a carefully selected additive package. It contains micronized graphite which forms an adhering film on metallic surfaces providing superior dry lubrication properties at temperatures above 90oC with a tenacious lubricant film for extreme usages.

Applications

- Open gears in cement works, quarries, crushing mills
- Excellent water resistance
- Wire ropes in elevators, overhead cranes, drag lines, mobile equipment
- Railway lines and other railroad equipment
- Special equipment in steel mills, coal mines conveyors
- Chains and sprockets
- For open gears exposed to humidity or sea water
- Effective protection against rust & corrosion

Recommendations

ARMOUREX RG is suitable for applications running on low and moderate temperatures and moderate to high loads. In addition it forms a tenacious film which prevents the lubricant throw-off from gears, strands of wire ropes and other Industrial, Marine applications.

Performance Standards

ENOC ARMOUREX RG meets ASTM D-4950 LB/GB.

Benefits

ARMOUREX RG provide:

- Excellent protection against gear and surface wear
- Good rust and corrosion protection
- Easy and safe application
- Malleable and long lasting high strength lubricant film
- High resistance to adverse weather conditions



NLGI Consistency	2
Soap Type	Calcium
Color	Black
Texture	Smooth
Cone Penetration, worked @ 25°C, 0.1 mm, ASTM D217	265 – 295
Dropping Point, °C, ASTM D566	102
Operating temperature range °C	-20 to70
Product code	224026

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ARMOUREX CS

Product Description

ENOC ARMOUREX CS is a heavy duty adhesive open gear grease based on calcium sulphonate complex semi fluid grease technology with extreme pressure properties and excellent water resistance, suitable for a wide range of Industrial, marine and mobile plant lubrication applications. It is formulated to provide maximum protection against gear wear, pitting, provide improved resistance to rust and corrosion and also has water displacement properties. It has high film strength providing a tough and tenacious lubricant film to withstand wide ambient temperature changes.

Applications

- Open gears, wire ropes, winches and chains, conveyors working in severe operations
- Wire ropes in elevators, overhead cranes, drag lines, mobile equipment
- Railway lines and other railroad equipment
- Used in steel mills, mines and quarries, cement works
- Marine and off-shore installations

It can be applied by brushing, swabbing, but best via pumping equipment through spray nozzle designed for semi fluid greases.

Performance Standards

ARMOUREX CS meets the following specifications:

ISO 6743-9: L-XBDIB 0
DIN 51502: OGP0N-25

**NLGI
Consistency**

2

Benefits

ARMOUREX CS provides:

- Excellent protection against gear and surface wear
- Good rust and corrosion protection
- Easy and safe application
- Excellent thermal stability
- High adhesive strength to protect highly loaded gear surfaces
- High resistance to extreme weather conditions and water resistance including sea water

NLGI Grade	2
Soap thickener	Calcium Sulphonate Complex
Colour	Dark Brown
Viscosity of the base oil mm ² /s @ 40°C	325
Operating temperature range °C	-25 to 150
Dropping point °C	>300
Penetration @ 25°C, ASTM D-217 0.1 mm	380-400
Four ball weld load, DIN 51 350-4	480-500
Anti-rust SKF – EMCOR DIN 51802	0-0

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ARMOUREX FLUIDS

Product Description

ENOC ARMOUREX FLUIDS H and L are black adhesive residual compounds developed for a wide range of Industrial and mobile plant lubrication applications. They are formulated where low cost lubrication is required and ease of application is necessary. ARMOUREX H and L FLUIDS are diluted with a special safe high flash point solvent that reduces the viscosity to allow easier application. They are compounded to provide maximum protection in open gear applications, provide improved resistance to rust and corrosion and also has water displacement properties. They have high film strength providing a tough and tenacious lubricant film to withstand extreme ambient temperature changes.

Applications

- Open gears in cement works, quarries, crushing mills
- Wire ropes in elevators, overhead cranes, drag lines, mobile equipment
- Railway lines and other railroad equipment
- Special equipment in steel mills, coal mines conveyors
- Chains and sprockets

Recommendations

ARMOUREX H and L FLUIDS have excellent resistance to adverse weather conditions in both low and high ambient temperatures. In addition they form a tenacious film which prevents the lubricant throw-off from gears. ARMOUREX L has good penetration properties to lubricate between the strands of wire ropes. ARMOUREX H is a heavier grade and it also contains EP anti-wear properties to provide improved protection under heavy gear load conditions. They can be applied by brushing, swabbing, dipping and spraying.

**Product
Grade**

**H
L**

Performance Standards

ARMOUREX H	ARMOUREX L
NF-ISO 6743-6 Cat. CKJ	NF-ISO 6743-6 Cat. CKH

Benefits

ARMOUREX FLUIDS provide:

- Excellent protection against gear and surface wear
- Good rust and corrosion protection
- Easy and safe application
- Pliable and long lasting high strength lubricant film
- High resistance to adverse weather conditions

Product Grade	H	L
Color	Black	Black
Density at 15°C, kg/L, ASTM D4052	1.00	0.998
Kinematic Viscosity of undiluted, mm ² /s at 100°C, ASTM D445	700	455
Kinematic Viscosity of diluted, mm ² /s at 25°C, ASTM D445	550	545
Softening temperature of undiluted product, °C	45	43
Flash Point, COC, °C, ASTM D 92	< 55	< 55
Product code	224021	224020

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Industrial Oils

ENOC AXIS H

Product Description

ENOC AXIS H is a premium range of quality hydraulic fluids designed for service in Industrial high pressure hydraulic systems and mobile equipment. It is produced from highly refined paraffinic base stocks and provides excellent protection against wear in a wide range of pumps and in all the active hydraulic components. Designed to provide long fluid life and trouble-free operation. Inhibited to protect the hydraulic system against corrosion and water separability characteristics.

Applications

A wide variety of industrial applications including hydraulic systems using vane, gear or piston pumps, some makes of rotary compressors, turbine worm gear units and machine tool hydraulic systems Mobile and construction equipment, marine deck equipment, hydrostatic transmissions, hydraulic drives and couplings, air-line lubricators, enclosed gears etc., where an anti-wear performance is specified

Performance Standards

DIN	51524 Part 2 HLP type
AFNOR	NFE 48-603 HM
US Steel	127, 136
Denison	HF-2, HF-0
Cincinnati Milacron	P-68, P-69, P-70
Vickers	1-286-S3, M-2950-S
ISO	L- 6743-4 HM

AXIS H viscosity grade should be selected according to the requirements of the application as specified by the equipment manufacturer.



Benefits

AXIS H provides:

- Suitability in a wide range of applications
- Outstanding anti-wear pump performance
- Superior thermal and oxidation stability
- Excellent hydrolytic stability and demulsibility characteristics
- Protection against rust and corrosion
- Effective control of foam and air release
- Excellent wet and dry filterability

ISO Viscosity Grade	32	46	68	100
Density at 15°C, kg/L, ASTM D4052	0.8688	0.8765	0.8788	0.8870
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	32	46	68	100
mm ² /s at 100°C	5.33	6.66	8.58	11.08
Viscosity index, ASTM D2270	98	96	96	95
Pour Point, °C, ASTM D97	-18	-18	-15	-15
Flash Point, (COC), °C, ASTM D92	206	226	236	260
Product code	240015	240016	240017	240018

Technical Data*

ENOC AXIS HVI

Product Description

ENOC AXIS HVI is a premium range of quality hydraulic fluids designed for service in Industrial high pressure hydraulic systems and mobile equipment. It is produced from highly refined paraffinic base stocks and provides excellent protection against wear in a wide range of pumps and in all the active hydraulic components. Designed to provide long fluid life and trouble-free operation. Inhibited to protect the hydraulic system against corrosion and water separability characteristics.

Applications

A wide variety of industrial applications including hydraulic systems using vane, gear or piston pumps, some makes of rotary compressors, turbine worm gear units and machine tool hydraulic systems Mobile and construction equipment, marine deck equipment, hydrostatic transmissions, hydraulic drives and couplings, air-line lubricators, enclosed gears etc., where an anti-wear performance is specified

Performance Standards

DIN	51524 Part 3 HVLP type
AFNOR	NFE 48-603 HM
US Steel	127, 136
Denison	HF-1, HF-0
Cincinnati Milacron	P-68(ISO 32), P-69(ISO 68), P-70 (ISO 46)
Vickers	M-2950-S, I-286-S

AXIS HVI viscosity grade should be selected according to the requirements of the application as specified by the equipment manufacturer.



Benefits

AXIS HVI provides:

- Suitability in a wide range of applications
- Outstanding anti-wear pump performance
- Superior thermal and oxidation stability
- Excellent hydrolytic stability and demulsibility characteristics
- Protection against rust and corrosion
- Effective control of foam and air release
- Excellent wet and dry filterability

ISO Viscosity Grade	15	22	32	46	68	100
Kinematic Viscosity						
mm ² /s at 40°C	15	22	32	46	68	100
mm ² /s at 100°C	3.9	4.8	6.2	8.1	10.8	14.1
Viscosity index, min	165	170	156	154	154	151
Flash Point, (COC), °C	160	180	206	210	216	224
Pour Point, °C	-42	-42	-36	-36	-33	-27
Zinc %m	0.043	0.043	0.043	0.043	0.043	0.043
FZG Damage Load Stage	11	11	11	11	11	11
Product code	240014	240008	240007	240009	240010	240011

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

Product Description

ENOC AXIS is a premium range of quality hydraulic fluids designed for service in Industrial high-pressure hydraulic systems and mobile equipment. It is produced from highly refined paraffinic base stocks and provides excellent protection against wear in a wide range of pumps and in all the active hydraulic components. Designed to provide long fluid life and trouble-free operation. Inhibited to protect the hydraulic system against corrosion and water separability characteristics.

Applications

- A wide variety of industrial applications including hydraulic systems using vane, gear, or piston pumps, some makes of rotary compressors, turbine worm gear units and machine tool hydraulic systems
- Mobile and construction equipment, marine deck equipment, hydrostatic transmissions, hydraulic drives and couplings, air-line lubricators, enclosed gears etc, where an anti-wear performance is specified

Performance Standards

Bosch Rexroth Bosch Rexroth Fluid Rating List RDE 90245 (ISO VG 32, 46, 68)
 Parker (Denison) F-0, HF-1 and HF-2 based on T6H20C hybrid pump testing
 Eaton E-FDGN-TB002-E
 Eaton M-2950-S (35VQ25 pump test)
 ISO 20763 Conestoga vane pump test
 Vickers I-286-S3 (Industrial equipment)
 DIN 51524 Part II & Part III*
 Cincinnati Machine P-68, P-69 and P-70
 ISO11158 Categories HH, HL, HM, HR and HV*
 ASTM D 6158*
 SAE MS1004*
 JCMAS P041 HK Hydraulic Specification
 ANSI/AGMA 9005-E02-RO
 GM LS-2
 AIST 126, 127 (US Steel)

AXIS viscosity grade should be selected according to the requirements of the application as specified by the equipment manufacturer.

Benefits

AXIS provides:

1. Excellent oxidation stability leading to following possible Customer benefits:
 - a. Capability to extend oil drain interval
 - b. Reduced disposal costs
 - c. Possibility to improve efficiency during the length of drain
 - d. High color stability as seen in NOC test
2. Proven sludge and particulate control
 - a. Improved filterability and consequently less downtime
 - b. Improved protection of critical components with tight tolerances such as servo valves and pumps
3. Enhances wear protection
 - a. Maximizes equipment life
 - b. Helps reduce maintenance costs
4. Excellent Hydrolytic stability
 - a. Improved protection and extended life of yellow metal parts of equipment



Left is Market General ISO VG 46 Hydraulic Oil & Right is ENOC Axis 68

ISO	ISO
15	68
22	100
32	150
37	220
46	

ISO Grades	15	22	32	37	46
Kinematic Viscosity					
mm ² /s @ 40°C	15	22	32	37	46
mm ² /s @ 100°C	4.2	4.8	5.3	6.2	6.8
Viscosity Index	95	98	98	95	95
Flash Point, °C	170	190	206	210	210
Pour Point, °C	-24	-24	-18	-18	-15
FZG Damage Load Stage	>12	>12	>12	>12	>12
Product Code	240012	240013	240001	240019	240002

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

ISO Grades	68	100	150	220
Kinematic Viscosity				
mm ² /s @ 40°C	68	100	150	220
mm ² /s @ 100°C	8.7	11	14.7	16.8
Viscosity Index	95	95	95	95
Flash Point, °C	236	260	260	266
Pour Point, °C	-15	-15	-15	-15
FZG Damage Load Stage	>12	>12	>12	>12
Product code	240003	240004	240005	240006

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC AXIS L

Product Description

ENOC AXIS L is a premium high-quality anti-wear hydraulic oil designed to satisfy a wide range of hydraulic equipment requirements. It provides long oil/filter life and optimum equipment protection reducing lubrication costs. AXIS L series are formulated with high quality Group II base oils and a superior additive package system that neutralises the formation of corrosive materials, excellent protection against wear in a wide range of pumps operating under severe conditions where high levels of antiwear and film strength protection are needed.

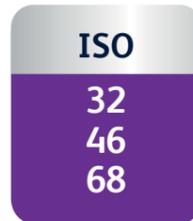
Applications

- A wide variety of industrial applications including hydraulic systems using vane, gear, or piston pumps, some makes of rotary compressors, turbine worm gear units and machine tool hydraulic systems.
- Mobile and construction equipment, marine deck equipment, hydrostatic transmissions, hydraulic drives and couplings, air-line lubricators, enclosed gears, etc, where an anti-wear performance is specified.
- Application where thin oil-film corrosion protection is an asset such as systems where small amounts of water are unavoidable.
- In hydraulic equipment with a wide range of components using various metallurgy.

Performance Standards

AXIS L meets and exceeds the following OEM and International specifications:

DIN	51524-II
AFNOR	NFE 48-603 HM
US Steel	127, 136
Denison	HF-0, HF-1, HF-2
Cincinnati Machine	P-68, P-69, P-70
Vickers	1-286-S3, M-2950-S
ISO	11158 HL
Eaton	35VQ25 pump Evaluation
Bosch Rexroth	Meets performance requirements for Bosch Rexroth RDE 90235



Benefits

AXIS L provides:

- Meets wide range of equipment requirements.
- Provides long oil and equipment life and extends filter life.
- Superior thermal and oxidation resistance compared to a Group 1 base oil hydraulic oils
- Lower volatility in high temperature and high-pressure operations.
- Excellent hydrolytic stability and demulsibility characteristics
- Reduces foaming and its negative effects

ISO Grades	32	46	68
Colour	L 0.5	L 0.5	L 0.5
Density @ 29.5 °C	0.8502		
Kinematic Viscosity mm ² /s @ 40 °C	32	0.8600	0.8670
mm ² /s @100 °C	5.51	6.9	9.0
Viscosity Index	108	105	106
Flash Point, °C	220	224	236
Pour Point, °C	-18	-18	-18
Demulsibility @ 54 °C, min	10	10	15
Product Code	240031	240033	240032

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC AXIS ZF HVI

Product Description

ENOC AXIS ZF HVI oils are anti-wear hydraulic oils are formulated with a non-zinc ashless type anti-wear additive to provide extended pump life in high pressure conditions. They are high viscosity index oils. Ashless technology used in ENOC AXIS ZF HVI oils is designed to meet anti-wear, anti-rust and anti-oxidation applications and generally provide an outstanding performance.

Applications

- Hydraulic systems operating under moderate to severe conditions in mobile and industrial service even in environmentally sensitive applications
- Mobile hydraulic fluid power transmission systems and general machine lubrication.
- Older design hydraulic pumps containing silver or silver-plated parts

Performance Standards

Meets the following manufacturers' requirements:

DIN 51524 Part 3 HVLP type
Dension HF-1 ; HF-2 and HF-O
Cincinnati lamb P-68(ISO 32); P-69 (ISO 68) and P-70 (ISO 46)
Eaton (Vickers) M-2950-S, I-286-S

Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.



Benefits

AXIS ZF HVI provides:

- Excellent thermal and hydrolytic stability
- Excellent anti-wear protection and filterability
- Superior demulsibility helps in faster separation of water and resists formation of emulsion
- Outstanding rust protection and resistance to foaming
- Ideal where disposal of oils containing heavy metals is a concern
- Reduce fish toxicity versus zinc containing products
- Can help to improve fuel economy and productivity versus monograde hydraulic oils

ISO Viscosity Grade	15	22	32	46	68	100
Kinematic Viscosity mm ² /s at 40°C	15	22	32	46	68	100
mm ² /s at 100°C	3.9	4.8	6.2	8.1	10.8	14.1
Viscosity index, min	165	170	156	154	154	151
Flash Point, (COC), °C	160	180	206	210	216	224
Pour Point, °C	-42	-42	-36	-36	-33	-27
Zinc %m	0,043	0,043	0,043	0,043	0,043	0,043
FZG, Fail Load Stage	11	11	11	11	11	11
Product code	240014	240008	240007	240009	240010	240011

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC AXIS ZF

Product Description

ENOC AXIS ZF oils are Anti-Wear Hydraulic Oils formulated with ashless type anti-wear additive to provide extended pump life in high pressure conditions. Ashless technology used in ENOC AXIS ZF oils is designed to meet anti-wear, anti-rust and anti-oxidation applications and generally provide an outstanding performance.

Applications

- Hydraulic systems operating under moderate to severe conditions in mobile and industrial service even in environmentally sensitive applications
- Mobile hydraulic fluid power transmission systems and general machine lubrication.
- Older design hydraulic pumps containing silver or silver-plated parts

Performance Standards

Meets the following manufacturers' requirements:

- DIN 51524 Part 1 & 2
- ISO 11158 HL & HM
- Schuler Pressem GmbH (excluding flywheel bearing)
- Danieli 0.000.001 Type 21 (Rev 15)
- Morgan No-Twist Mill, Rod Mill Lubricants (ISO VG 100 only)

Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.

Benefits

AXIS ZF provides:

- Excellent thermal and hydrolytic stability
- Excellent anti-wear protection and filterability
- Superior demulsibility helps in faster separation of water and resists formation of emulsion
- Outstanding rust protection and resistance to foaming
- Ideal where disposal of oils containing heavy metals is a concern
- Reduce marinelifetime toxicity versus zinc containing products

ISO Grade	15	32	46	68	100
Viscosity mm ² /s @ 40°C	14.5	31.2	45.9	68.3	97.6
Viscosity mm ² /s @100°C	3.4	5.4	6.8	8.4	11.03
Viscosity Index	100	100	100	99	98
Pour Point, °C	-24	-21	-18	-15	-12
Flash Point, COC, °C	190	202	210	218	244
FZG damage stage	>12	>12	>12	>12	>12
Emulsion Test 30 minutes max @ 54°C	Pass	Pass	Pass	Pass	Pass
Rust Test	Pass	Pass	Pass	Pass	Pass
Product Code	240051	240052	240053	240054	240055

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC AXIS FR (HDF-U)

Product Description

ENOC AXIS FR (HDF-U) are high quality synthetic ester based fire resistant hydraulic fluids designed for uses in applications where fire hazards exist. FR (HDF-U) do not contain water, mineral oil or phosphate ester and are based on high quality, synthetic, organic esters and carefully selected additives to achieve excellent hydraulic fluid performance. It can also be used in environmentally sensitive hydraulic applications without compromising the overall hydraulic system operations.

Applications

- Particularly recommended in the steel industry, specifically for hydraulic systems in continuous casting machines of blast furnaces, rolling machines, discharge racks
- Coke plants for coke pushers
- Suitable for all hydraulic systems and machines/plants where flames or high temperatures and risk of fire caused by fluid leakage exists

Performance Standards

AXIS FR (HDF-U) meets and exceeds the following International specifications:

- Biodegradability, percent as per CEC-L-33-T-82 : > 90
- Toxicological properties : Categorized as non-hazardous and environmentally safe

The AXIS FR (HDF-U) oil viscosity grade should be used according to the equipment manufacturer's recommendations.

Benefits

AXIS FR (HDF-U) provides:

- Fire resistant high ignition temperature and low heat release
- Properties that limit fire propagation
- Excellent shear stability
- Fully biodegradable, non-toxic, environmentally compatible and non-toxic to aquatic life
- Have excellent thermal stability
- Exhibit good temperature/ viscosity relationship and have high viscosity index
- Fortified with additives for good corrosion protection, metal passivation and oxidation inhibition
- Have excellent hydrolytic stability
- Do not attack ferrous & non-ferrous metals and are compatible with most elastomers, gaskets and fittings
- commonly used in hydraulic systems

ISO Grades	46	68
Kinematic Viscosity mm ² /s @ 40°C	42 to 50	62 to 72
mm ² /s @100°C	8.5 to 10.5	11.5 to 13
Viscosity Index, min	180	180
Flash Point, COC, °C	>310	>305
Fire Point, °C	>330	>330
Auto Ignition Temperature, °C	>400	>400
Product code	240073	240074

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VORTEX GT-2 EP

Product Description

ENOC VORTEX GT-2 EP is a premium performance, anti-wear turbine oil manufactured from high quality hydro treated turbine base oils with high temperature corrosion and oxidation inhibitors designed for modern high performance Industrial Gas Turbines. The result is a product that exhibits outstanding oxidation performance to meet the requirements of gas turbines with reduction gear sets.

Applications

- All types of stationary industrial gas turbines with reduction gear sets
- Turbine gear sets which require extreme pressure performance lubricants
- High pressure and high temperature steam turbines
- High thermal efficiency combined cycle gas and steam turbine units
- Air compressors, turbo-blowers and centrifugal pumps requiring a rust and oxidation inhibited oil
- Moderate loaded gear units in circulation systems, moderate pressure hydraulic pumps, vacuum pumps, conveyors and electric motors

Recommendations

VORTEX GT-2 EP has been developed to meet major Turbine manufacturer specifications for Industrial gas turbines with reduction gear sets where special anti-wear additive system forms a protective chemical film on heavily loaded gear tooth surfaces to minimize wear and scuffing.

Performance Standards and OEM recommendations

DIN 51515/1; Alstom, ABB and EGT;
BS489 – 1999; Siemens KWU

Benefits

VORTEX GT-2 EP PROVIDES

- Extended oil service life using special high temperature oxidation inhibitors
- Low maintenance and downtime using special severely refined base oils giving long life oxidation resistance
- Prolonged life of reduction gear sets using special anti-wear additive system which will form a protective chemical film that minimize wear and scuffing
- Minimum operational problems by using a non-silicon foam inhibitor which allow rapid release of entrained air while minimizing foam formation

ISO Viscosity Grade	32	46	68
Density at 15°C, kg/L, ASTM D4052	0.8622	0.8685	0.8820
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	32	46	68
mm ² /s at 100°C	5.32	6.69	8.6
Viscosity index, ASTM D2270	97	97	97
Pour Point, °C, ASTM D97	-18	-18	-15
Flash Point, (COC), °C, ASTM D92	210	218	236
Demulsibility at 54°C, ASTM D1401 Minutes to 3ml	<10	<10	<10
Oxidation stability, TOST Life, hrs. to 2.0 Acid No, ASTM D 943	>10000	>10000	>10000
RPVOT, mins to 25 psi pressure drop, ASTM D D2272	>1300	>1300	>1300
Air Release @ 50°C, mins, ASTM D3427	< 3	< 3	< 3
Product code	242020	242021	242022

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC VORTEX GT-2

Product Description

ENOC VORTEX GT-2 is manufactured from special high quality turbine-grade base oils with high temperature corrosion and oxidation inhibitors designed for modern high performance Industrial Gas Turbines. The result is a product that exhibits outstanding oxidation performance to meet the requirements of severe operational conditions. It can ensure precise operation of servo-hydraulic controls and offers good corrosion protection. They also have excellent antifoam and air release characteristics which is important for the precision of the servo-control systems.

Applications

- All types of stationary industrial gas turbines
- Turbine gear sets which do not require extreme pressure performance lubricants
- High pressure and high temperature steam turbines
- High thermal efficiency combined cycle gas and steam turbine units

Recommendations

VORTEX GT-2 has been developed to meet General Electric and other major Turbine manufacturer specifications for Industrial gas turbines where high gas temperatures in the bearing housings can be experienced. It has good rationalization properties which are important for operators who need to lubricate all types of gas and combined gas and steam turbines designed to operate on high performance mineral oil lubricants.

Performance Standards and OEM recommendations

DIN	51515/1	General Electric	GEK 32 568F, 28143A
BS	489 - 1999	ABB STAL	81 21 01
ISO	6743/5 L TSA, TGA, TGB, TGE	Pignone Nuovo	SOM 173664, 23543/5
JIS K	2213 Type 2	SOLAR	ES 9-224 U
Alstom	HTGD 90 117	Thermodyn	ISPSH 901 SDI, 902 SDI
Siemens	TLV 9013 04		

Benefits

VORTEX GT-2 PROVIDES

- Extended oil service life using special high temperature oxidation inhibitors
- Low maintenance and downtime using special severely refined base oils giving long life oxidation resistance
- Precise servo-control valve operation through control of formation of harmful deposits
- Rationalization capability where gas and steam turbine units are combined

ISO Viscosity Grade	32	46	68	100
Density at 15°C, kg/L, ASTM D4052	0.8622	0.8685	0.8820	0.8856
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	32	46	68	100
mm ² /s at 100°C	5.32	6.69	8.6	11.25
Viscosity index, ASTM D2270	97	97	97	98
Pour Point, °C, ASTM D97	-18	-18	-15	-12
Flash Point, (COC), °C, ASTM D92	210	218	236	244
Oxidation stability, TOST Life, hrs. to 2.0 Acid No, ASTM D 943	>10000	>10000	>10000	>10000
RPVOT, mins to 25 psi pressure drop, ASTM D D2272	>1300	>1300	>1300	>1300
Air Release @ 50°C, mins, ASTM D3427	< 3	< 5	< 5	< 5
Product code	242001	242002	242003	242004

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC VORTEX SAT

Product Description

ENOC VORTEX SAT is manufactured from special synthetic base stocks producing a 5 cSt lubricant required for aero derivative Gas Turbines used in industrial applications. The result is a product that exhibits outstanding oxidation performance to meet the requirements of severe operational conditions. It can ensure precise operation of servo-hydraulic controls and offers good corrosion protection.

Applications

- All types of stationary aero derivative gas turbines used in industrial applications
- Marine off-shore power generation
- Oil industry off-shore rigs
- Remote operational stand-by gas turbine power generation

Performance Standards

ENOC VORTEX SAT meets the requirements for the following International specifications:

US military specification	MILPRF-23699F STD
UK military specification	DEF STAN 91-101/2 (replaced DERD 2499),
Rolls-Royce Ltd, Rolls-Royce Allison, GE, Pratt & Whitney, Pratt & Whitney Canada, Honeywell, Hamilton Sundstrand, CFMI, IAE, MTU, Solar, Turbomeca.	

Always follow equipment manufacturer's recommendation for required oil performance and re-lubrication periods.

Benefits

ENOC VORTEX SAT provides:

- Extended oil service life using special high temperature oxidation inhibitors
- Low maintenance and downtime using special synthetic base oils giving long life oxidation resistance
- Precise servo-control valve operation through control of formation of harmful deposits
- Rationalization capability in aero derivative and industrial gas turbine units

Density at 15°C, kg/L, ASTM D4052	0.9749
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	24.2
mm ² /s at 100°C	4.97
mm ² /s at -40°C	7950
Pour Point, °C, ASTM D97	-57
Flash Point, (COC), °C, ASTM D92	265
Total Acid Number, mg KOH/g, ASTM D 664	0.43
Product code	242030

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC SPIRO H

Product Description

ENOC SPIRO H Oils are a range of premium quality lubricants specifically developed for the cylinders and crankcases of modern reciprocating air compressors. They can also be used in some rotary air compressors. They offer low carbon forming tendencies, low volatility and superior oxidation stability. They provide excellent lubrication over a wide operating temperature range, including easy starting and good fluidity at low temperatures.

Applications

- Single and multi-stage reciprocating air compressors
- Stationary and portable air compressors where the OEM does not specify engine oil
- Essential for compressed air applications where the German DIN 51506 VDL specification is required
- High pressure compressors where air discharge temperatures do not exceed 105oC

Performance Standards

DIN	51506 VDL
ISO	DAH, DAC
DIN	51517 Part I and II

Always follow the compressor manufacturer's recommendations for correct operation and maintenance procedures.

Recommendations

SPIRO H Oils have been formulated to provide optimum service life under arduous operating conditions which is demonstrated by the German DIN 51506 VDL specification that was developed to measure the lubricant's resistance to the hazards of potential fires in air discharge systems. Spiro H Oils minimize the formation of carbon, varnish and sludge deposits thus reducing the potential fire risk. It is fully miscible with conventional mineral oil based compressor oils and seal materials.

Not recommended for use in compressors used to fill air-breathing equipment

ISO

46
68
100
150

Benefits

SPIRO H provides:

- Superior performance
- Minimal deposit formation
- A wide range of applications
- Low oil consumption
- Lower maintenance costs
- Improved air system safety

ISO Viscosity Grade	46	68	100	150
Density at 15°C, kg/L, ASTM D4052	0.8724	0.8791	0.8824	0.8863
Viscosity, Kinematic, ASTM D 445				
mm ² /s at 40°C	46	68	100	150
mm ² /s at 100°C	6.7	8.62	11.1	14.55
Viscosity index, ASTM D2270	97	97	96	95
Flash Point, (COC), °C, ASTM D92	210	236	250	260
Pour Point, °C, ASTM D97	-15	-15	-15	-15
Copper Corrosion, 3 hrs. @ 100°C, ASTM D 130	1a	1a	1a	1a
Product code	245052	245053	245054	245055

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SPIRO RS

Product Description

ENOC SPIRO RS Oils have been specially developed to give long trouble free service life under challenging conditions found in the application of oil-flooded rotary sliding vane and air screw compressors. They incorporate high temperature oxidation inhibitors blended into highly refined and selected paraffinic narrow cut base stocks that provide excellent oxidation stability as measured by ASTM D-943 test and rust and corrosion inhibitors. The unique properties of SPIRO RS Oils can make a significant contribution to reducing maintenance costs as their properties will extend oil life through the reduction in the formation of lacquers and deposits.

Applications

- Oil flooded rotary screw air compressors used in mobile and industrial applications
- Sliding vane oil flooded air compressors not requiring anti-wear type of lubricant
- Rotary air compressors used in marine applications

Performance Standards and OEM recommendations

DIN	51506 VDL	Atlas Copco, Baurer, Compair
NF-ISO	6743-3A classified DAJ	Hydrovane, others

Always follow the compressor manufacturer's recommendations for correct operation and maintenance procedures.

Recommendations

SPIRO RS Oils have improved oil life benefits for use in the construction industry where severe environments and maintenance procedures are often difficult to control also they provide rationalization opportunities where mixed equipment is used. They offer long oil life and associated low maintenance costs in industrial applications where operating conditions are better controlled.

Not recommended for use in compressors used to fill air-breathing equipment

Benefits

SPIRO RS provides:

- Reduced maintenance costs through outstanding oxidation stability to resist the formation of harmful carbon deposits
- Long service life capabilities in stationary applications up to 4000 hours where oil analysis is used
- Good demulsibility characteristics
- Effective control of foam and air release
- Mobile equipment with oil life up to 1000 hours

ISO Grade	32	46	68	100
Density @ 15°C	0.8724	0.8724	0.8791	0.8761
Viscosity, mm ² /s @ 40°C	32	46	68	100
mm ² /s @ 100°C	5.5	6.7	8.7	11.06
Viscosity Index	95	95	95	95
Flash Point, COC,°C	210	210	236	236
Pour Point,°C	-15	-15	-15	-15
Product code	245001	245002	245003	245004

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC SPIRO PA

Product Description

ENOC SPIRO PA oils are a range of high performance polyalphaolefins (PAO) based synthetic compressor lubricants giving the very best performance in rotary flooded air compressors to provide long service life in extreme operating conditions.

Applications

- Rotary oil-flooded screw and vane compressors
- Compressors operating in extreme ambient conditions
- Two stage Compressors operating at high pressures and temperatures
- Critical compressor applications where long life oil life, and high performance operations are required

Performance Standards

NF-ISO 6743 DAJ

Always follow the compressor manufacturer's recommendations for required lubricant performance.

Benefits

SPIRO PA provides:

- Optimization of compressor efficiency
- Extended oil drain intervals up to 8000 hours with lubricant analysis monitoring
- Excellent resistance to carbon build-up
- Very high viscosity index to cover a wide temperature of operations
- Excellent low volatility characteristics to reduce oil consumption

ISO Viscosity Grade	32	46	68	100	150	220
Density @ 15°C	0.819	0.823	0.863	0.829	0.834	0.836
Viscosity, mm ² /s @ 40°C	32	46	68	100	150	220
Viscosity Index	136	139	147	143	142	141
Flash Point, COC,°C	250	255	262	265	272	272
Pour Point,°C	-42	-42	-42	-39	-39	-39
Product code	245056	245057	245058	245059	245060	XXXXX

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SPIRO PG

Product Description

ENOC SPIRO PG oils are premium quality, high performance, synthetic gas compressor lubricants based on Polyalkylene glycol. They are primarily intended for use in gas compressors for hydrocarbon and chemical gases where the crankcases and bearings operate in a gas filled atmosphere. ENOC SPIRO PG oils have a lower gas solubility and consequently resists dilution and have improved viscosity control which results in additional protection against wear, improved efficiency, and reduced foaming.

Applications

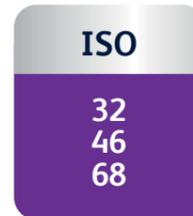
ENOC SPIRO PG oils are recommended for the lubrication of crankcases and bearings operating in gas filled atmosphere including:

- Liquefied Petroleum Gases (LPG) such as Propane and Butane.
- Liquefied Natural Gases (LNG) such as Methane and Ethane
- Hydrocarbon Chemical Gases such as Ethylene, Propylene and Butylene
- Chemical Gases such as Ammonia, Vinyl Chloride Monomer and Butadiene.
- Marine vessels carrying liquified gas cargoes

Benefits

SPIRO PG provides:

- Lower gas solubility when compressing hydrocarbon gases
- Higher viscosity with outstanding lubricity
- Rapid gas to oil separation to reduce foaming tendency
- Suitability to handle a wide range of hydrocarbon and chemical gases
- Excellent oxidation stability to provide maximum oil drain intervals



Descriptor	68	150
Density at 15 °C	0.99	1.060
Viscosity, mm ² /s @ 40°C	67	142
mm ² /s @100°C	10.3	26.5
Viscosity Index	166	210
Flash Point, COC, °C	215	280
Pour Point, °C	-48	-48
Product code	245102	245101

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC SPIRO SE

Product Description

ENOC SPIRO SE oils are a range of high performance synthetic diester based air compressor lubricants giving the very best performance in rotary flooded air compressors to provide long service life in high operating temperature conditions.

Applications

- Rotary oil-flooded screw and vane compressors
- Turbo Compressors operating in extreme ambient conditions
- Two stage Compressors operating at high pressures and temperatures
- Vacuum pumps
- Compressor applications where long life oil life, and high performance operations are required

Performance Standards

NF-ISO 6743 DAC

DAJ DIN 51506 VDL

Always follow the compressor manufacturer's recommendations for required lubricant performance.



Benefits

SPIRO SE provides:

- Optimization of compressor efficiency
- Extended oil drain intervals with lubricant analysis monitoring
- Excellent resistance to carbon build-Up
- Operating discharge temperature up to 250°C
- Low foaming characteristics in turbocompressors

ISO Viscosity Grade	46	68	100
Density at 15°C, kg/L, ASTM D4052	0.960	0.959	0.960
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	47	70	100
Viscosity index, ASTM D2270	105	100	150
Flash Point, (COC), °C, ASTM D92	244	254	262
Rust Protection, ASTM D665B	Pass	Pass	Pass
Demulsibility at 54°C, ASTM D1401 Minutes to 3ml	20	20	
Demulsibility at 82°C, ASTM D1401 Minutes to 3ml			25
Pour Point, °C, ASTM D97	-40	-39	-27
Product code	245063	245062	245061

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SPIRO PGP

Product Description

Spiro PGP Series products are fully synthetic compressor lubricants which are formulated using premium polyalkylene glycol (PAG) and polyol ester (POE) synthetic base fluid, coupled with a high performance additive package. These compressor lubricants feature excellent thermal and oxidation stability enabling them to operate over a wide range of temperatures without degradation, varnish, deposit formation, or corrosion. The high viscosity index (VI) enables them to operate over this wide temperature range with a change in viscosity much reduced than other formulated lubricants. Spiro PGP Series are specifically advantageous in high temperature applications, particularly as the low volatility means that there is significantly reduced lubricant in the air stream and any degradation at high thermal temperatures will not result in any detrimental varnishes or deposits.

Performance Features

- Oxidatively stable - Longer system life
- Extremely low volatility - Reduced maintenance, reduced top-up
- High viscosity index - Wide temperature range of operation
- Excellent lubricity - Increased efficiency, reduced cost of operation

Applications

Spiro PGPseries products are recommended for use in:

- Rotary screw compressors
- Harsh chemical environments
- Coastal and marine environment
- Other applications, particularly high temperature environment



ISO GRADE	32	46
Density, g/ml, 20°C, ASTM D4052	0.982	0.978
Viscosity @ 40°C, cSt, ASTM D445	35.9	50.3
Viscosity @ 100°C, cSt	7.9	9.4
Viscosity Index, ASTM D2270	177	182
Autoignition Temperature, °C, E659	407	396
Pour Point (°C), ASTM D97	-51	-54
Flash Point, (COC), °C, ASTM D92	266	274
Fire Point, (C.O.C.), °C, ASTM D92	302	282
Foaming Tendency, mL, ASTM D892		
Sequence I	100/0	30/0
Sequence II	20/0	0/0
Sequence III	190/0	180/0
Noack Volatility (% Loss), ASTM D972	5.9	4.8
Rust Test, ASTM D665 (distilled water)	Pass	Pass

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC REDUCT

Product Description

ENOC REDUCT oils are a range of premium quality, heavy duty industrial gear oils which have been developed for the lubrication of enclosed gears, working under both normal and severe operating conditions. They are formulated from high quality paraffinic base oils and incorporate mild extreme pressure sulphur-phosphorus chemical technology. REDUCT oils show excellent results in the FZG Gear Load Test which is a benchmark for gear wear protection and confirms its excellent load carrying capacity. In addition, special inhibitors provide excellent protection against rust, corrosion and foaming.

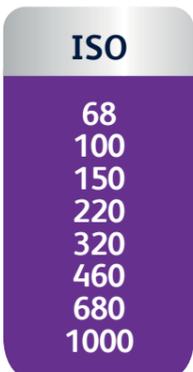
Applications

- Enclosed industrial gear units operating under high loads and or severe shock loading conditions
- Enclosed spur, helical, bevel and worm gears
- Heavily loaded plain or anti-friction bearings operating under shock loading conditions
- Oil bath with splash, circulation or spray lubrication
- Chain drives, slide guides and flexible couplings
- Many manufacturing industries such as mining, cement, steel and general engineering

Performance Standards

REDUCT meets and exceeds the following International specifications:

DIN	51517 Part 3
U.S. Steel	224
AGMA	9005-D94
David Brown	S1, 53101



Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer's recommendations.

Benefits

REDUCT provides:

- Superior load carrying ability
- Reduced gear wear
- Minimize friction, resulting in reduced bulk oil temperature
- Excellent oxidation stability
- Protection against rust and corrosion
- Resistance in micro-pitting

ISO Viscosity Grade	68	100	150	220	320	460	680	1000
AGMA Grade 9005-D 94	2EP	3EP	4EP	5EP	6EP	7EP	8EP	8AEP
Density at 15° C, kg/L, ASTM D4052	0.8725	0.8822	0.8869	0.8925	0.8986	0.9065	0.9125	0.9255
Viscosity, Kinematic, ASTM D 445								
mm ² /s at 40° C	68	100	150	220	320	460	680	1000
mm ² /s at 100° C	8.54	11.08	14.53	18.71	24	30.3	39.0	50
Viscosity index, ASTM D2270	95	95	95	95	95	95	95	95
Pour Point, °C, ASTM D97	-15	-15	-15	-15	-12	-12	-12	-12
Flash Point, (COC), °C, ASTM D92	226	234	236	242	248	252	254	254
Copper Corrosion, 3 hrs. @ 100°C, ASTM D 130	1B							
FZG, Fail Load Stage, DIN 51354	12	12	12	12	12	12	12	12
Rust Protection, ASTM D665	Pass							
Product code	241001	241002	241003	241004	241005	241006	241007	241008

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC REDUCT C

Product Description

ENOC REDUCT C oils are industrial compounded gear oils and are often referred to as “steam cylinder oils” and are used where there is a presence of water operating under severe operating conditions. They are high viscosity oils formulated from high quality base oils and incorporating special fatty oils to prevent water wash-out. They provide excellent load carrying capacity and protection against rust and corrosion.

Applications

- Enclosed industrial gear units operating under low speed and high loads
- Enclosed worm gears where the wheel is made from “yellow” metal
- Heavily loaded plain or anti-friction bearings operating under heavy loaded conditions
- Suitable for stern tubes with circulatory systems
- Comparable performance to other mineral oils normally used for stern tube lubrication
- Oil bath with splash lubrication
- Many manufacturing industries such as mining, cement, steel and general engineering

Performance Standards

REDUCT C meets and exceeds the following International specification:

ISO 6743/0Z

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer's recommendations.

Benefits

REDUCT C provides:

- Superior load carrying ability
- Accepted by most leading seal and bearing manufacturers
- Reduced gear wear
- Minimizes spalling or welding
- Excellent protection against water wash-out
- Tenacious oil film that protects against rust and corrosion



ISO Viscosity Grade	320	460	680
Density at 15°C, kg/L, ASTM D4052	0.896	0.906	0.930
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	320	460	680
mm ² /s at 100°C	24	30.3	39.0
Viscosity index, ASTM D2270	95	95	95
Pour Point, °C, ASTM D97	-9	-6	-6
Flash Point, (COC), °C, ASTM D92	250	262	270
Product code	241103	241101	241102

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC REDUCT GMS

Product Description

ENOC REDUCT GMS oils are a range of heavy duty mineral base industrial gear oils containing graphite and Molybde-numDi-sulphide for enclosed gears working under shock and severe operating conditions. REDUCT GMS oils show excellent results in the FZG Gear Load Test which is a benchmark for gear wear protection and confirms its excellent load carrying capacity. In addition, special inhibitors provide excellent protection against rust, corrosion.

Applications

- Enclosed industrial gear units operating under heavy and severe shock loading conditions
- Enclosed spur, helical, bevel and worm gears
- Heavily loaded plain bearings operating also under shock loading conditions
- Oil bath with splash, circulation or spray lubrication
- Flexible gear couplings
- Many manufacturing industries such as mining, cement, sugar and general engineering

Performance Standards

REDUCT GMS meets and exceeds the following International specifications:

DIN 51517 Part 3

ISO 6743-6 CKD, CKE

AGMA 9005-D94

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer's recommendations.

Benefits

REDUCT GMS provides:

- Excellent load carrying ability
- Very high anti-wear properties under shock load conditions with graphite and molybdenum disulphide
- Good seal compatibility
- Minimal spalling or welding and minimises micro-pitting wear
- Protection against rust and corrosion



ISO Viscosity Grade	150	220	320	460	680
Density at 15°C, kg/L, ASTM D4052	0.888	0.8926	0.8969	0.9068	0.9240
Viscosity, Kinematic, ASTM D 445					
mm ² /s at 40°C	150	220	320	460	680
mm ² /s at 100°C	14.53	18.71	24	30.3	39.0
Viscosity index, ASTM D2270	95	95	95	95	95
Pour Point, °C, ASTM D97	-15	-15	-12	-9	-6
Flash Point, (COC), °C, ASTM D92	236	246	250	254	254
FZG, Fail Load Stage, DIN 51354	> 13	> 13	> 13	> 13	> 13
Product code	241401	241402	241403	241404	241405

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC REDUCT PG

Product Description

ENOC REDUCT PG oils are a range of premium quality, specialized synthetic, heavy duty industrial gear oils which have been developed for worm gear reducers working under shock load and extreme temperature range. They are formulated from polyglycol base stocks and incorporate mild extreme pressure properties. REDUCT PG oils are particularly suitable for transmissions with high sliding rates such as in worm gears incorporating yellow metals. In addition, special inhibitors provide excellent protection against rust, corrosion and foaming.

Applications

- Enclosed industrial worm gear units operating under high loads and or severe shock loading conditions
- Very low pour point to give good lubrication at very low temperatures
- Excellent oxidation resistance in high temperature operations
- Very high viscosity index suitable for very wide temperature operations 2 to 3 times mineral gear oils
- Compatible with seals and “yellow” metals used in worm gear systems

Performance Standards

REDUCT PG meets and exceeds the following International specifications:

DIN	51517 Part 3
ISO	6743-6 cat. CKS/CKT
David Brown	G type



Always follow equipment manufacturer’s recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer’s recommendations.

Benefits

REDUCT PG provides:

- Exceptional load carrying ability
- Excellent control of gear wear
- Long oil life
- Excellent oxidation stability
- Protection over wide temperature range

ISO Viscosity Grade	150	220	320	460	680	1000
Density @ 15°C kg/m ³	1.054	1.058	1.062	1.065	1.070	1.089
Viscosity mm ² /s @ 40°C	159	220	320	460	680	1000
Viscosity mm ² /s @100°C	30	42	58	79	114	163
Viscosity Index ISO 2909	230	235	245	252	262	284
Flash Point COCC	>240	>240	>240	>240	>240	>240
Pour Point,°C	-42	-42	-39	-36	-36	-30
Product code	241301	241302	241303	241304	241305	241306

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC REDUCT SH

Product Description

ENOC REDUCT SH oils are a range of premium quality, synthetic, heavy duty industrial gear oils which have been developed for enclosed gears working under severe operating conditions. They are formulated from polyalphaolefin base stocks and incorporate mild extreme pressure sulphur-phosphorus chemical technology. REDUCT SH oils show excellent results in the FZG Gear Load Test which is a benchmark for gear wear protection and confirms its excellent load carrying capacity. In addition, special inhibitors provide excellent protection against rust, corrosion and foaming.

Applications

- Enclosed industrial gear units operating under high loads and or severe shock loading conditions
- Enclosed spur, helical, bevel and worm gears
- Very low pour point for very low temperature operations
- Excellent oxidation resistance in high temperature operations
- Very long life between oil service intervals with a factor of 2 – 4 times mineral gear oils
- Compatible with seals and “yellow” metals used in some types of gear systems

Performance Standards

REDUCT SH meets and exceeds the following International specifications:

DIN	51517 Part 3
ISO	6743-6 cat. CKD/CKT
U.S. Steel	224
David Brown	H type



Always follow equipment manufacturer’s recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer’s recommendations.

Benefits

REDUCT SH provides:

- Exceptional load carrying ability
- Excellent control of gear wear
- Long oil life
- Excellent oxidation stability
- Protection against rust and corrosion

ISO Viscosity Grade	150	220	320	460	680
Density at 15°C, kg/L, ASTM D4052	0.857	0.859	0.863	0.864	0.866
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	150	220	320	460	680
mm ² /s at 100°C	19	25.9	34	44	60
Viscosity index, ASTM D2270	144	150	150	149	155
Pour Point,°C, ASTM D97	-42	-39	-36	-33	-27
Flash Point, (COC),°C, ASTM D92	>260	>260	>260	>260	>260
FZG, Fail Load Stage, DIN 51354	> 13	> 13	> 13	> 13	> 13
Product code	241205	241202	241203	241204	241206

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC REDUCT SS

Product Description

ENOC REDUCT SS oils are a range of high viscosity semi synthetic, heavy duty industrial gear oils which can operate on enclosed gears working under severe operating conditions. They incorporate special extreme pressure chemistry that shows excellent results in the FZG Gear Load Test which is a benchmark for gear wear protection. In addition, special inhibitors provide excellent protection against rust, corrosion.

Applications

- Enclosed industrial gear units operating under high loads and low speed conditions
- Enclosed spur, helical, and worm gears
- Highly loaded gears operating in sugar mills where shock loads occur
- Excellent oxidation resistance in high temperature operations
- Compatible with seals in particular used in the sugar industry

Performance Standards

REDUCT SS meets and exceeds the following International specifications:

DIN	51517 Part 3
AGMA	9005 – D94
U.S. Steel	224
David Brown	S1, 53101

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer's recommendations.

Benefits

REDUCT SS provides:

- Exceptional extreme load carrying ability
- Excellent control of gear wear
- Good seal compatibility
- Excellent oxidation and thermal stability
- Protection against rust and corrosion

ISO Viscosity Grade	1500	2200	3200
Density at 15° C, kg/L, ASTM D4052	0.919	0.925	0.928
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40° C	1500	2200	3200
mm ² /s at 100° C	64	78.5	98.1
Viscosity index, ASTM D2270	95	92	92
Pour Point, °C, ASTM D97	-9	-3	-3
Flash Point, (COC), °C, ASTM D92	220	230	240
FZG, Fail Load Stage, DIN 51354	> 13	> 13	> 13
Product code	241502	241503	241503

Technical Data*

ENOC REDUCT OGC 190

Product Description

ENOC REDUCT OGC 190 is heavily loaded open gear Lubricant with adhesive properties and extreme pressure capability. The lubricant is of high viscosity residual type lubricants blended from bituminous materials and paraffinic base oils. The lubricant gives good film tenacity, minimum throw off, and high resistance to water washing.

Applications

REDUCT OGC190 is recommended for open gear, wire rope and chain drive lubrication. Should not be used for the application of antifriction bearings.

Performance Standards

Enoc OGC190 is a bituminous compound blended with high viscosity base oil. The viscosity of the product at 100oC is in the range of 1100-1300 cSt as per ASTM D-445.

Always follow equipment manufacturer's recommendation for required lubricant performance levels and oil change intervals. The oil viscosity selected should be based on operating conditions and Gear Manufacturer's recommendations.

Benefits

REDUCT OGC190 provides:

- Long term and efficient gear protection against wear
- Excellent lubrication for highly loaded gear
- Ability to perform well under variety of conditions

Specific gravity, ASTM D1298	1.016
Viscosity, Kinematic, ASTM D 445 mm ² /s at 100° C	1200
Flash Point, (COC), °C, ASTM D92	270
Product code	241506

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC CIRCULA

Product Description

ENOC CIRCULA are general purpose oils made from selected paraffinic base stocks. They have high viscosity indexes, and good natural water separating characteristics and are suitable for applications where straight mineral oils are acceptable for light duty lubrication.

Applications

- General purpose industrial lubrication
- Light duty gear cases
- Engine air cleaners
- Chains and cables

Performance Standards

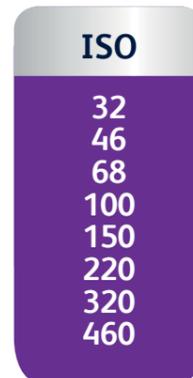
DIN 51506 VB-L

Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.

Benefits

Circula provides:

- A wide range of viscosities
- High viscosity index
- Natural oxidation stability which helps to resist oil degradation
- Resistance to sludge formation
- Good natural water separation characteristics



ENOC CIRCULA RO

Product Description

ENOC CIRCULA RO are general purpose oils made from selected paraffinic base stocks. They have high viscosity indexes, inhibited with rust and oxidation performance. They also have excellent water separating characteristics and are suitable for applications where no antiwear properties are required.

Applications

32, 46 and 68 are excellent for general lubrication and total loss systems as well as circulating and hydraulic systems where make-up rates can be high. 68 and 100 can be used in mechanical vacuum pumps, compressors, machine tools. 100 and 150 may also be used in circulating and hydraulic systems requiring these higher viscosities. 68, 100 and 150 can be used for enclosed gears, bath and circulating systems.

Performance Standards

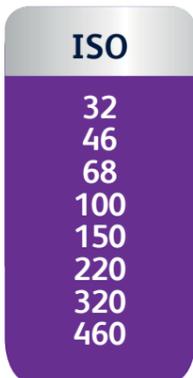
DIN 51515 Part 1

Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.

Benefits

Circula RO provides:

- A wide range of viscosities
- Good oxidation stability
- High viscosity index
- Resistance to sludge formation
- Excellent water separation characteristics



ISO Viscosity Grade	32	46	68	100	150	220	320	460
Density at 15° C, kg/L, ASTM D4052	0.8655	0.8685	0.8752	0.8822	0.8869	0.8925	0.8986	0.9065
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40° C	32	46	68	100	150	220	320	460
mm ² /s at 100° C	5.36	6.72	8.70	11.08	14.53	18.71	24	30.3
Viscosity index, ASTM D2270	100	98	99	95	95	95	95	95
Pour Point, °C, ASTM D97	-9	-9	-9	-6	-6	-6	-6	-6
Flash Point, (COC), °C, ASTM D92	210	220	228	240	256	262	266	270
Product code	248002	248007	248001	248003	248004	248005	248006	248008

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ISO Viscosity Grade	32	46	68	100	150	220	320	460
Density at 15° C, kg/L, ASTM D4052	0.8655	0.8685	0.8752	0.8822	0.8869	0.8925	0.8986	0.9065
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40° C	32	46	68	100	150	220	320	460
mm ² /s at 100° C	5.36	6.72	8.70	11.08	14.53	18.71	24	30.3
Viscosity index, ASTM D2270	100	98	99	95	95	95	95	95
Pour Point, °C, ASTM D97	-18	-18	-15	-15	-15	-9	-9	-9
Flash Point, (COC), °C, ASTM D92	210	220	228	240	256	262	266	270
Product code	247001	247002	247003	247008	247004	247005	247006	247007

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC CRYOGEN N

Product Description

ENOC Cryogen N refrigeration oils are manufactured from premium quality hydrotreated naphthenic base stocks, dewaxed to very low wax content. Consequently, they have very low pour points and good miscibility with Freon to provide low Freon floc points with CFC refrigerants such as R-12. Cryogen N oils can contribute towards prolonged compressor and seal life through the high thermal stability which controls the formation of carbon and gummy deposits at elevated temperatures that are encountered in the high-pressure side of the refrigeration cycle.

Applications

- Industrial refrigeration equipment
- Business/domestic and office air conditioning systems
- Reciprocating and rotary refrigeration compressors
- Refrigeration systems using freon (CFCs), ammonia, carbon dioxide

Not suitable for systems containing HFC refrigerants ie. HFC 134a.

Recommendations

BS 2626-1992

Carrier, PP46-1

Not recommended for use in compressors for air breathing equipment

Benefits

Cryogen N provides:

- Reduced downtime by maintaining clean working surfaces
- Prevention of waxy and gummy deposits through high oil thermal stability
- Very good miscibility with refrigerants for good lubrication
- Extended oil service life, excellent resistance to oxidation
- Low pour and floc points and miscibility with refrigerants



ISO Viscosity Grade	32	46	68
Density at 15°C, kg/L, ASTM D4052	0.910	0.910	0.913
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	32	46	69
mm ² /s at 100°C	4.4	5.4	6.66
Flash Point, (COC), °C, ASTM D92	190	196	200
Pour Point, °C, ASTM D97	-39	-33	-30
Freon Floc Point, °C, FTM791C/86	-36	-36	-29
Copper Corrosion, 3 hrs. @ 100°C, ASTM D 130	1a	1a	1a
Sulfur, m%	0.05	0.06	0.06
Neutralization value, mg KOH/g, ASTM D 664	0.01	0.01	0.01
Product code	244001	244002	244003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC CRYOGEN AB

Product Description

ENOC Cryogen AB refrigeration oils are manufactured from high quality alkybenzene synthetic oils for use with HCFC refrigerants. They have very low pour points and good miscibility with Freon R 22, R408A, R409A and R401A to provide low Freon floc points. Cryogen AB oils have exceptionally good miscibility with these refrigerants and additionally can contribute towards prolonged compressor and seal life through the high thermal stability which controls the formation of carbon and gummy deposits at elevated temperatures.

Applications

- Business/domestic and office air conditioning systems
- Reciprocating and rotary refrigeration compressors
- Refrigeration systems using freon R22
- Cylinder lubrication in Industrial air compressors with discharge temperature >200°C

Not suitable for systems containing HFC refrigerants ie. HFC 134a.

Recommendations

APV, Bitzer, Bock, Sabroe, York, Bauer, Cirrus

Not recommended for use in compressors for air breathing equipment

Benefits

Cryogen AB provides:

- Reduced downtime by maintaining clean working surfaces
- Prevention of waxy and gummy deposits through high oil thermal stability
- Very good miscibility with R22 refrigerants for good lubrication
- Extended oil service life, excellent resistance to oxidation
- Low pour and floc points and miscibility with refrigerants

Caution: Flush the system well if moving from mineral oil to synthetic alkybenzene oil.



ISO Viscosity Grade	55	100	150
Density at 15°C, kg/L, ASTM D4052	0.872	0.879	0.886
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	50	94	140
mm ² /s at 100°C	5.9	7.9	10.3
Flash Point, (COC), °C, ASTM D92	200	200	210
Pour Point, °C, ASTM D97	-33	-33	-30
Floc Point in R22, °C, FTM791C/86	-60	-58	-28
Neutralization value, mg KOH/g, ASTM D 664	< 0.04	< 0.04	< 0.04
Product code	244101	244102	244103

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC CRYOGEN PE

Product Description

ENOC Cryogen PE refrigeration oils are manufactured from high quality synthetic polyolester oils for use with HFC refrigerants. They have very low pour points and good miscibility with a range of HFC refrigerants to provide low Freon flocc points. Cryogen PE oils have exceptionally good miscibility with these refrigerants and additionally can contribute towards prolonged compressor and seal life through the high thermal stability which controls the formation of carbon and gummy deposits at elevated temperatures.

Applications

- Business/domestic and office air conditioning systems
- Reciprocating refrigeration compressors suitable to use Cryogen PE 22, 32, 46 and 68
- Rotary refrigeration compressors suitable to use Cryogen PE 68, 100, 150 and 220
- Compatible with a range of refrigerants R134a, R404A, R407C, R410A, R507
- Ultra Low temperature applications

Not suitable for systems containing CFC refrigerants ie. R 12, R22 etc.

Oem Recommendations

AERZEN, BOCK, CARRIER, GRASSO, GRAM, HOWDEN, J&E HALL, SABROE, SULZER, TECUMESH, YORK

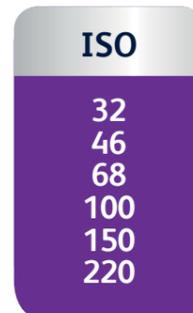
Not recommended for use in compressors for air breathing equipment unless confirmed by the OEM

Benefits

Cryogen PE provides:

- Reduced downtime by maintaining clean working surfaces
- Prevention of waxy and gummy deposits through high oil thermal stability
- Very low dilution with refrigerants for good lubrication
- Extended oil service life, excellent resistance to oxidation
- Ultra low pour and floc points and miscibility with refrigerants

Caution: Flush the system well if moving from mineral oil to synthetic polyolester oil.



ISO Viscosity Grade	32	46	68	100	150	220
Density at 15°C, kg/L, ASTM D4052	0.981	0.971	0.9231	0.960	0.964	0.968
Viscosity, Kinematic, ASTM D 445						
mm ² /s at 40°C	32	46	68	100	150	208
mm ² /s at 100°C	5.9	7.3	10.8	11.3	13.8	17.8
Flash Point, (COC);°C, ASTM D92	250	250	280	280	280	280
Pour Point,°C, ASTM D97	-51	-45	-45	-30	-25	-21
Water content, ppm, ASTM D6304	<50	<50	<50	<50	<50	<50
Neutralization value, mg KOH/g, ASTM D 664	0.18	0.18	0.18	0.18	0.18	0.18
Product code	244019	244104	244105	244106	244017	244018

Technical Data*

ENOC CRYOGEN NH-68

Product Description

ENOC CRYOGEN NH 68 refrigeration oil is formulated with high quality synthetic polyalphaolefin (PAO) basestock, combined with patented seal swell technology. These lubricants have features of Enhances oxidation stability and a low pour point, allowing them to operate over a wide range of temperatures. They have low volatility, enabling decreased maintenance and significantly reduced lubricant consumption. The patented seal swell technology minimizes ammonia leaks common as a result of elastomer performance.

CRYOGEN NH 68 is particularly suited for use in ammonia compressors with evaporator temperatures below -39oC.

Performance Features

- Patented seal swell technology
 - Mineral oil compatible
 - Oxidatively stable
 - Low carry-over
 - Corrosion protection
 - Very low pour point
 - Low volatility
- Minimize ammonia leaks
 - Easier change-over
 - Longer system life
 - Improve evaporator efficiency
 - Enhances system reliability and reduced down-time
 - Reduced efficiency loss and easier removal of the oil
 - Reduced maintenance, reduced top-up

Application

- Ammonia compressors
- Process gas rotary screw
- Process gas reciprocating compressors



ISO Viscosity Grade	68
Density at 15°C, kg/L, ASTM D4052	0.8545
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	68
mm ² /s at 100°C	10.22
Viscosity index, ASTM D2270	136
Flash Point, (COC);°C, ASTM D92	266
Pour Point,°C, ASTM D97	-54
Product code	244107

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC ARC TRANSFORMER OIL (Inhibited)

Product Description

ENOC ARC Transformer oil (Inhibited) is an inhibited premium quality transformer and switchgear insulating oil manufactured from high quality virgin mineral oil stocks with high purity and stability. ARC Transformer oil (Inhibited) possesses excellent oxidation stability due to its antioxidant formulation, high dielectric strength and resistance to acid and sludge formation to meet the technical requirements of the transformer manufacturers.

Applications

- All makes of Power transformers, Distribution transformers.
- Oil immersed electrical switch-gear.
- Circuit breakers.
- Oil filled capacitors.
- X-ray equipment.

Performance Standards - Inhibited

IEC 60296 - 2020 Edition 5.0 Standard Table – 3 General Specifications.
ASTM D 1275 Test requirement for Corrosive Sulphur

Benefits

ENOC ARC Transformer oil (Inhibited) provides:

- Excellent oxidation stability.
- High dielectric impulse strength.
- Low electrostatic charging in operation.
- Good resistance to breakdown voltage.

Transformer Oil Type	
Density, g/cm ³ @ 20°C	0.85
Viscosity, mm ² /s @ 40°C, ISO 3104	9.5
Viscosity mm ² /s @ -30°C, ISO 3104	<1800
Flash Point, PMCC, °C, ISO 2719	>135
Pour Point, °C, ISO 3016	<-40
Breakdown Voltage, KV After treatment, IEC 60156	>70
Acidity, mgKOH/gm, Acidity, IEC 62021-1	<0.01
Corrosive Sulphur, Silver strip, 100°C, 18 hrs, DIN 51353	Non-Corrosive
Corrosive Sulphur Copper strip, 150°C, 48 hrs, ASTM D 1275 B	Non-Corrosive
Potential Corrosive Sulphur, IEC 62535	Non-Corrosive
Gassing Tendency IEC 60628	PASS
Dielectric Dissipation Factor (DDF @90 °C) Max. IEC 60247	<0.005
Water content mg/kg, IEC60814	30
Inhibitors according to IEC 60666, (%)	0.08 to 0.40
DBDS, mg/kg, IEC 62697-1	Not Detectable (<5)
PCA Content, (%), IP 346	<3.0
PCB Content, mg/kg, IEC 61619	Not Detectable (<2)
2-Furfural and related compounds content, mg/kg, IEC 61198	Not Detectable (<0.05)
Product Code	243003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ARC TRANSFORMER OIL (Silicone)



Product Description

ENOC ARC Transformer oil (Silicone) is a premium quality transformer and switchgear insulating oil manufactured from high quality polydimethyl silicone with high thermal stability and oxidation resistance. ARC Transformer oil (Silicone) possesses excellent operating capabilities over a wide temperature range, high dielectric strength and resistance to sludge formation to meet the technical requirements of the transformer manufacturers.

APPLICATION

- All makes of Power transformers, Distribution transformers.
- Oil immersed electrical switch-gear.
- Circuit breakers.
- Oil filled capacitors.

Performance Standards - Inhibited

IEC 836 – Silicone Type T-1
ASTM D4652-92
IEC 1100 Class K3

BENEFITS

ENOC ARC Transformer oil (Silicone) provides:

- Excellent oxidation stability.
- High dielectric impulse strength.
- Low electrostatic charging in operation.
- High fire point and lower heat release.

STORAGE PRECAUTIONS

Transformer Oils require special handling and storage. ENOC strongly recommends that drums are stored horizontally inside a warehouse. The transfer of ARC in bulk and its storage must be in dedicated containers. Electrical oil service equipment must be available when the product is transferred. These precautions are necessary to ensure the transformer oil is protected against moisture and dirt. The oil must be kept clean and dry.

Transformer Oil Type	
Density, g/cm ³ @ 20°C	0.97
Viscosity, mm ² /s @ 40°C, ISO 3104	40
Flash Point, PMCC, °C, ISO 2719	260
Pour Point, °C, ISO 3016	-50
Breakdown Voltage, KV After treatment, IEC 60156	50
Neutralization value, mg KOH/gm, IEC 62021-1	0.008
Dielectric Dissipation Factor (DDF @90 °C) Max. IEC 60247	0.0005
Water content mg/kg, IEC60814	30
Permittivity @ 90°C	2.55
Product Code	243004

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC ARC TRANSFORMER OIL

Product Description

ENOC ARC Transformer oil is an uninhibited premium quality transformer and switchgear insulating oil manufactured from high quality Naphthenic mineral oil stocks. ARC Transformer oil possesses good oxidation stability, high dielectric strength and resistance to acid and sludge formation to meet the technical requirements of the Transformer manufacturers.

Applications

- All makes of transformers.
- Oil immersed electrical switch-gear.
- Circuit breakers.
- Oil filled capacitors.

Performance Standards

IEC 60296- edition 4, 2012

Benefits

ARC provides:

- Excellent oxidation stability.
- High dielectric impulse strength.
- Low electrostatic charging in operation.
- Good resistance to breakdown voltage.

STORAGE PRECAUTIONS

Transformer Oils require special handling and storage. ENOC strongly recommends that drums are stored horizontally inside a warehouse. The transfer of ARC in bulk and its storage must be in dedicated containers. Electrical oil service equipment must be available when the product is transferred. These precautions are necessary to ensure the transformer oil is protected against moisture and dirt. The oil must be kept clean and dry.

Density, g/cm ³ @ 15°C	0.861
Viscosity, mm ² /s @ 40°C, ISO 3104	10.0
Viscosity mm ² /s @ -30°C, ISO 3104	1291
Flash Point, PMCC, °C, ISO 2719	147
Pour Point, °C, ISO 3016	-60
Breakdown Voltage, KV After treatment, IEC 60156	75
Acidity, mg KOH/gm, Acidity, IEC 61125 C	<0.01
Oxidation Stability at 120 °C, 164 hours, IEC 61125, C	PASS
Dielectric Dissipation Factor (DDF @90 °C) Max. IEC 60247	0.005
Water content mg/kg, IEC60814	20
Metal Passivator additive mg/kg, IEC60666	Not Detectable
Anti-Oxidant additives (Inhibitors), %, Max. IEC 60666	Not Detectable
Product Code	243002

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC LAMINA

Product Description

ENOC LAMINA Oil is a highly refined paraffinic oil suitable for a range of heat transfer applications in both closed and open systems with pumped circulation.

APPLICATION

- Open systems operating at temperatures up to 200oC.
- Closed systems with inert gas sealing up to 290oC.
- Heating of reaction vessels, driers, moulding machines.
- Manufacturing processes – Cement, Paper, other industries.

Performance Standards - Inhibited

DIN 51502 class L

ISO 6743/12 class L QB family

Always follow the equipment manufacturer's recommendations.

BENEFITS

LAMINA Oil provides:

- Maximum energy transfer efficiency.
- Low temperature flow characteristics at start-up.
- Good resistance to the formation of deposits.
- Good thermal stability.

ISO Viscosity Grade	22	32
Density at 15°C, kg/L, ASTM D4052	0.8588	0.8620
Viscosity, Kinematic, ASTM D 445		
mm ² /s at 40°C	22	32
mm ² /s at 100°C	4.28	5.4
Viscosity index, ASTM D2270	98	102
Flash Point, (COC), °C, ASTM D92	208	218
Fire Point, °C (COC), ASTM D92	250	260
Auto Ignition temperature, °C, DIN 51794	350	352
Pour Point, °C, ASTM D97	-15	-12
Initial Boiling point, °C, ASTM D86	370	372
Conradson Carbon Residue % m, ASTM D189	0.03	0.03
Operating temperature limit – Closed system, °C	280	290
Product code	249101	249100

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC LAMINA SPECIAL

Product Description

ENOC LAMINA Special Oil is a high quality heat transfer and fast quenching medium. It is thermally stable, has high specific heat and thermal conductivity which gives outstanding performance in direct heating installations operating at bulk temperatures up to maximum 320°C

Applications

- If used for open system, the operating temperature shall not exceed 210oC for safety purposes
- Recommended for use in indirect heating and cooling installations in all kinds of Industrial processes operating at bulk oil temperatures up to maximum 320oC for ISO 32
- Closed systems with inert gas sealing up to 290oC
- Heating of reaction vessels, driers, moulding machines
- Fast Quenching applications

Performance Standards

ASTM D-3520 (GM Quench meter) for ISO 22 VG oil

Averages quench time (sec) 13.5

Relative cooling Index 202

DIN 51502 class L

ISO 6743/12 class L QB family



Always follow the equipment manufacturer's recommendations.

Benefits

LAMINA Special Oil provides:

- High resistance to thermal cracking and decomposition
- Maximum energy transfer and improved operating efficiency
- Low temperature flow characteristics at start-up
- Good resistance to the formation of deposits
- Good thermal stability

ISO Viscosity Grade	32	22						
Density at 15°C, kg/L, ASTM D4052	0.8682	0.8555						
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	32	22						
mm ² /s at 100°C	5.42	4.39						
Viscosity index, ASTM D2270	103	107						
Flash Point, (COC),°C, ASTM D92	220	210						
Fire Point,°C (COC), ASTM D92	260	250						
Pour Point,°C, ASTM D97	-12	-12						
Auto Ignition temperature,°C, DIN 51794	353	350						
Bulk oil temperature (in absence of air)°C	290	-15						
Film temperature (in absence of air)°C	310							
Initial Boiling point,°C, ASTM D86	372	370						
Final Boiling point,°C, ASTM D86	516	0.03						
Product code	249104	249103						
Temperature	0	20	40	100	150	200	250	300
Density (Kg/m ³)	883	870	857	818	785	753	720	688
Specific heat capacity, cP	1.790	1.860	1.930	2.140	2.315	2.490	2.665	2.840
Thermal Conductivity (W/m°C)	0.13	0.134	0.132	0.128	0.125	0.121	0.118	0.114

Technical Data*

ENOC LAMINA SPECIAL (AB)

Product Description

ENOC LAMINA Special (AB) Oil is a high-quality alkylbenzene based heat transfer fluid formulated for closed loop liquid phase heating systems up to 288oC. It is thermally stable, has high specific heat and thermal conductivity which gives outstanding performance in direct heating installations operating at bulk temperatures up to maximum 288°C.

Applications

- Gas processing
- Liquid terminal tank heating
- Asphalt plants
- Plastic production

Performance Standards

KS M 2501

DIN 51502 class L

ISO 6743/12 class L QB family



Always follow the equipment manufacturer's recommendations.

Benefits

LAMINA Special (AB) Oil provides:

- High resistance to thermal cracking and decomposition
- Maximum energy transfer and improved operating efficiency
- Low temperature flow characteristics at start-up
- Good resistance to the formation of deposits
- Good thermal stability

ISO Viscosity Grade	32
Density at 15°C, kg/L, ASTM D4052	0.880
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	32
mm ² /s at 100°C	5.42
mm ² /s at 288°C	4.39
Flash Point, (COC),°C, ASTM D92	19
Maximum recommended Film temperature	3.4
Maximum recommended Operating temperature	3.4
Minimum Operating temperature 20 cPs	0.54
Minimum Start-Up Temperature 300 cPs	171
Boiling Point (101 kPa)	318
Vapor Pressure @ maximum operating temperature (kPa)	288
% Volume expansion over recommended operating temperature p&C	35
Product code	-8
	343
	25
	10.8
	249105

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Power Generation Oils

ENOC STRATA LSF

Product Description

ENOC STRATA LSF are a range of high-performance Marine Engine oils developed for high output, Trunk Piston Diesel Engines burning distillate or medium sulphur heavy gas oil fuel. They incorporate proven performance dispersant and detergent technology developed to provide long life lubrication in modern and older engines that are operating in coastal shipping or power generation applications.

Applications

- High output Trunk Piston Engines burning distillate fuels where the sulphur content is <0.5%
- Lubrication of turbocharged Trunk Piston Engines used in marine and stationary applications
- Generally, for the smaller, higher rpm medium speed engines also suitable for stand-by generations

Performance Standards And Oem Recommendations

Approved by Wartsila. Suitable for use in major 4-Stroke engine manufacturers like Caterpillar, Nigata, MAN etc

Benefits

STRATA LSF provides:

- Improved dispersant/detergent technology to reduce deposit formations
- Long engine and oil service lives
- Effective neutralization of combustion acids
- Excellent protection against bearing corrosion
- Superior resistance to oxidation and oil thickening



Product	LSF 312	LSF 412	LSF 315	LSF 415	LSF 512	LSF 515
SAE Viscosity Grade	30	40	50	30	40	50
Kinematic Viscosity mm ² /s @ 40°C	105.7	145.4	252.1	105.7	145.4	252.1
mm ² /s @ 100°C	11.98	14.66	21.48	11.98	14.66	21.48
Viscosity Index	100	99	100	100	99	100
Flash Point, COC°C	248	250	250	248	250	260
Pour Point, °C	-15	-15	-15	-15	-15	-12
TBN, mg of KOH/g	12	12	12	15	15	15
Product Code	152001	152006	252009	152008	152004	252011

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA MSD

Product Description

ENOC STRATA MSD are a range of generation III high performance engine oils for all types of marine medium speed diesel engines operating on high sulphur residual fuels. They have been developed from the latest complex dispersant and detergent technology to provide long lubrication life and Enhances engine performance in particular in low emission engines and those with anti-bore glazing piston designs.

Applications

- Oil of appropriate BN to be chosen based on the sulphur content of the fuel used. Follow manufacturer's recommendation for selection of suitable BN level / Viscosity Grade
- Provide gear lubrication qualities for reduction gear applications where recommended by OEMs
- Suitable for high output turbocharged engines
- It is recommended that Strata MSD oils are suitable for centrifuging and/or filtered in accordance with the manufacturer's instructions
- Suitable for WARTSILA NSD, MAN (B&W), KHD DEUTZ, PIEL STICK, NIGATA, MAK, DAIHATSU, MIRLESS BLACKSTONE trunk piston diesel engines (4 Stroke)

Performance Standards

- Approved for WARTSILA Marine Engines.
- Suitable for use in MAN B&W and Sulzer Marine Engines.

Benefits

STRATA MSD provides:

- Suitability for engines using high sulphur residual or distillate fuels
- Superior resistance to oxidation and oil thickening
- Effective neutralization of acidic combustion products
- Proven detergent/dispersant technology to reduce deposit formation
- Long engine and oil service life
- Excellent centrifugal separator operation
- Better demulsibility characteristics ensure water separation, leading to trouble free operation

Product	320	330	340	350	355	420	430	440	450	455	530	540
SAE Grade	30	30	30	30	30	40	40	40	40	40	50	50
Density at 15°C, kg/L, ASTM D4052	0.8981	0.9041	0.9101	0.9198	0.9266	0.8924	0.8996	0.9044	0.9099	0.9105	0.9153	0.9197
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	104.3	106.5	107	104.2	106.5	144.0	144.8	142.6	145.6	142.5	220	222
mm ² /s at 100°C	11.66	11.75	11.78	11.81	11.78	14.7	14.82	14.69	14.78	14.66	18.88	18.96
Pour Point, °C, ASTM D97	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-12	-12
Flash Point, °C (COC), ASTM D92	244	242	242	242	244	248	252	252	248	252	258	256
Total Base number, mg KOH/g, ASTM D 2896	20	30	40	50	55	20	30	40	50	55	30	40
FZG test (A/8.3/90) failure load stage, DIN 51354	12	12	12	12	12	12	12	12	12	12	12	12
Sulfated Ash, m %, ASTM D 874	2.3	3.45	4.61	5.74	6.3	2.3	3.45	4.79	5.74	6.3	3.45	4.61
Product code	252019	252003	252012	252018	252013	252010	252005	252002	252020	252014	252015	254016

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC STRATA MSDO

Product Description

ENOC STRATA MSDO are a range of generation III high performance engine oils for all types of marine medium speed diesel engines operating on high sulphur residual fuels. They have been developed from the latest complex dispersant and detergent technology to provide long lubrication life and Enhances engine performance in particular in low emission engines and those with anti-bore glazing piston designs.

Applications

- A range of high Total Base Number oils for use in Trunk Piston Engines burning variable quality residual fuel with high sulphur content available in the market
- Provide gear lubrication qualities for reduction gear applications where similar viscosities might be used
- Suitable for high output turbocharged engines
- It is recommended that Strata MSD oils are suitable for centrifuging and/or filtered in accordance with the manufacturer's instructions
- Suitable for MAN (B&W), KHD DEUTZ, PIEL STICK , NIGATA, MAK, DAIHATSU, MIRLESS BLACKSTONE trunk piston diesel engines (4 Stroke)

Performance Standards

Approved for WARTSILA Marine Engines

Suitable for use in MAN B&W and Sulzer Marine Engines



Benefits

STRATA MSDO provides:

- Suitability for engines using high sulphur residual or distillate fuels
- Superior resistance to oxidation and oil thickening
- Effective neutralization of acidic combustion products
- Proven detergent/dispersant technology to reduce deposit formation
- Long engine and oil service life
- Excellent centrifugal separator operation

Product	320	330	340	350	355	420
SAE Grade	30	30	30	30	30	40
Density at 15°C, kg/L, ASTM D4052	0.8981	0.9041	0.9101	0.9198	0.9266	0.8924
Viscosity, Kinematic, ASTM D 445						
mm ² /s at 40°C	104.3	106.5	106.8	105.2	106.5	144.0
mm ² /s at 100°C	11.66	11.75	11.78	11.81	11.84	14.72
Pour Point,°C, ASTM D97	-15	-15	-15	-15	-15	-15
Flash Point,°C (COC), ASTM D92	244	242	242	242	244	248
Total Base number, mg KOH/g, ASTM D 2896	20	30	40	50	55	20
FZG test (A/8.3/90) failure load stage, DIN 51354	12	12	12	12	12	12
Sulfated Ash, m %, ASTM D 874	2.45	3.66	4.89	6.1	6.7	2.45
Product code	252021	252022	252023	252024	252025	252026
Product						
SAE Grade	430	440	445	450	455	530
Density at 15°C, kg/L, ASTM D4052	40	40	40	40	40	50
Viscosity, Kinematic, ASTM D 445	0.8996	0.9044	0.9065	0.9099	0.9105	0.9153
mm ² /s at 40°C						
mm ² /s at 100°C	144.8	142.6	142.6	142.6	140.5	215.6
Pour Point,°C, ASTM D97	14.82	14.72	14.70	14.65	14.58	18.88
Flash Point,°C (COC), ASTM D92	-15	-15	-15	-15	-15	-12
Total Base number, mg KOH/g, ASTM D 2896	252	252	252	248	252	256
FZG test (A/8.3/90) failure load stage, DIN 51354	30	40	45	50	55	40
Sulfated Ash, m %, ASTM D 874	12	12	12	12	12	12
Product code	252027	252028	252033	202029	252030	252031

Technical Data*

ENOC KHAURA AF

Product Description

ENOC KHAURA AF oils are ASH Free Gas engine oils. They are formulated with high neutral quality base oils and quality ashless additive package containing ashless dispersant, oxidation inhibitors and metallic antiwear components that are suitable for engines that require low ash (0.05%) dispersant and detergent engine lubricants. Primarily intended for the lubrication of spark ignited two-stroke and four-stroke gas fueled engines.

Applications

- Two-Stroke and selected Four Stroke Stationary Engines that require Ash Free content and use natural gas or LPG/ CNG as a fuel
- Two and Four stroke engines that are sensitive to combustion chamber and port deposits
- Suitable for engines with bearing corrosion problems
- Meet the requirements of slow-speed gas engines operating under normal service conditions
- Irrigation pumping service
- Electric power generation

Performance Standards

Major Gas engine OEM recommendations	Fairbanks – Morse (2 cycle)
Caterpillar (except 3400 to 3600 series)	Waukesha VR and Intermediate / Clinton
Clark - Dresser	Worthington (2 – cycle)
Ajax	White Superior naturally aspirated
Climax	Dresser- Rand Category 1 and 11
Cooper Bessemer (2-cycle)	



Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades. Mobile gas engines require API SJ and above engine oils.

Benefits

KHAURA AF Oils provides:

- Low maintenance cost and long engine life
- Low ring and cylinder liner wear
- Minimum oil viscosity increase due to oxidation and nitration resistance
- Reduced valve recession due to the low ash producing additives
- Minimize the formation of crankcase sludge also in the valve top deck cover area
- Reduce spark plug fouling, Pre- ignition, Port plugging
- Excellent copper – lead bearing protection

SAE Grade	15W-40	30	40
Density at 15°C, kg/L, ASTM D4052	0.8724	0.8828	0.8865
Viscosity, Kinematic, ASTM D 445			
mm ² /s at 40°C	108.6	105.7	151.7
mm ² /s at 100°C	14.8	11.98	15.11
Viscosity index, ASTM D2270	141	103	100
Pour Point,°C, ASTM D97	-30	-24	-18
Flash Point, (COC),°C, ASTM D92	228	246	254
Sulfated Ash, m %, ASTM D 874	Nil	Nil	Nil
Total Base number, mg KOH/g, ASTM D 2896	2.0	2.0	2.0
Product code	264013	264011	264012

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC KHAURA LA, SAE 40

Product Description

ENOC KHAURA LA SAE 40 is a premium quality Gas engine oils, primarily intended for the lubrication of spark ignited natural gas engines. It has been developed from high quality mineral oil base stocks with special advance additive technology containing ashless dispersant, oxidation inhibitors and metallic antiwear components that are suitable for engines that require low ash engine lubricants. In particular, Khaura LA SAE 40 is formulated to provide excellent control to oil nitration and oil oxidation, wear and deposits in high output natural gas engines.

Applications

- Moderate service turbocharged stationary engines fuelled by natural gas or biogas
- Two stroke Detroit Diesel engines
- Four stroke engines manufactured by Waukesha, Wartsila and Caterpillar
- Deutz-MWM, Jenbacher, Mitsubishi and Perkins
- Meets the requirements of low-speed gas engines operating under normal service conditions

Performance Standards

Khaura LA SAE 40 is formulated with approved technologies covering:

GE JENBACHER Type 2, Type 3, Type 4 (version A&B), Type 6 (version C&E) natural gas (class A)

GE JENBACHER Type 2, Type 3, Type 4 (version A&B), Type 6 (version C&E) biogas (class B) MWM Natural gas MWM Biogas

Khaura LA SAE 40 meets and exceeds the following OEM specifications:

Caterpillar	WAUKESHA
MAN	MTU
Dresser-Rand Guascor	PERKINS
Deutz	Ruston



Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.

Benefits

KHAURA LA SAE 40 provides:

- Minimum oil viscosity increase due to oxidation and nitration resistance
- Reduced valve recession due to the level and type of ash producing additives
- Minimize the formation of crankcase sludge also in the valve top deck cover area
- Reduced maintenance cost due to Low wear by providing good protection against piston ring and liner scuffing, scoring

SAE Grade	40
Density at 15°C	0.890
Viscosity, mm ² /s @ 40°C	119.3
mm ² /s @ 100°C	13.6
Viscosity Index	105
Flash Point, °C	260
Pour Point, °C	-21
Sulfated Ash, % wt.	0.5
Total Base Number ASTM D-2896	5.4
Zinc content, ppm	340
Phosphorus content, ppm	280
Product Code	264001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PEGASO 413

Product Description

ENOC PEGASO 413 oil has been developed for high output medium speed diesel engines requiring "Zinc-free", LMOA (Locomotive Maintenance Officers Association) Generation 5 lubricant used in locomotive, marine and stationary service applications. This railroad oil is formulated from high quality paraffinic base oils and incorporates special detergent-dispersant technology for engines burning high sulphur distillate fuels.

Applications

- Medium speed two-stroke and four-stroke railroad diesel engines
- GM EMD railroad engines (SAE 40)
- General Electric railroad engines (SAE 40)
- Detroit Diesel two-stroke engines burning >0.5 m% sulphur fuel
- Stationary generator sets including Caterpillar 3600 series engines

Recommendations

PEGASO 413 oil is specially formulated to lubricate locomotive diesel engines which are fitted with silver alloy bearings that require zinc-free lubricants. In addition it is non-chlorine lubricant and the additive system provides excellent control of piston and ring deposits and is highly dispersant for soot control.

Performance Standards

LMOA Generation 5 SAE 40 grade General Motors – EMD Generation 5

General Electric – Generation 5 LL (Long Life) Caterpillar 3600 series

API CF / CF-2

Always follow equipment manufacturer's recommendations for required lubricant performance levels and viscosity grades.

Benefits

PEGASO 413 Oil provides:

- Protection of Silver alloy bearings through special zinc-free anti-wear additive system
- Maximum engine protection against corrosive wear
- Effective control of high temperature deposits and highly dispersant to control soot
- Extended oil drain with high sulphur fuel through good base number retention
- High thermal and oxidation stability to maintain long periods of engine cleanliness

SAE Grade	40
Density at 15°C, kg/L, ASTM D4052	0.8892
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	138.2
mm ² /s at 100°C	14.53
Viscosity index, ASTM D2270	104
Pour Point, °C, ASTM D97	-15
Flash Point, (COC), °C, ASTM D92	248
Sulfated Ash, m%, ASTM D 874	1.44
Total Base number, mg KOH/g, ASTM D 2896	13
Zinc, ppm, ASTM D 5185	<10
Chlorine, ppm	<10
Product code	256002

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC PEGASO 417

Product Description

ENOC PEGASO 417 oil has been developed for high output medium speed diesel engines requiring “Zinc-free”, LMOA (Locomotive Maintenance Officers Association) Generation 5 lubricant used in locomotive, marine and stationary service applications. This railroad oil is formulated from high quality paraffinic base oils and incorporates special detergent-dispersant technology for engines burning high sulphur distillate fuels.

Applications

- Medium speed two-stroke and four-stroke railroad diesel engines
- GM EMD railroad engines (SAE 40)
- General Electric railroad engines (SAE 40)
- Detroit Diesel two-stroke engines burning >0.5 m% sulphur fuel
- Stationary generator sets including Caterpillar 3600 series engines

Recommendations

PEGASO 417 oil is specially formulated to lubricate locomotive diesel engines which are fitted with silver alloy bearings that require zinc-free lubricants. In addition it is non-chlorine lubricant and the additive system provides excellent control of piston and ring deposits and is highly dispersant for soot control.

Performance Standards

LMOA Generation 5 SAE 40 grade General Motors – EMD Generation 5
General Electric – Generation 5 LL (Long Life) Caterpillar 3600 series
API CF / CF-2

Always follow equipment manufacturer’s recommendations for required lubricant performance levels and viscosity grades.

Benefits

PEGASO 417 Oil provides:

- Protection of Silver alloy bearings through special zinc-free anti-wear additive system
- Maximum engine protection against corrosive wear
- Effective control of high temperature deposits and highly dispersant to control soot
- Extended oil drain with high sulphur fuel through good base number retention
- High thermal and oxidation stability to maintain long periods of engine cleanliness

SAE Grade	40
Density at 15°C, kg/L, ASTM D4052	0.8892
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	138.2
mm ² /s at 100°C	14.53
Viscosity index, ASTM D2270	104
Pour Point, °C, ASTM D97	-15
Flash Point, (COC), °C, ASTM D92	248
Sulfated Ash, m%, ASTM D 874	1.89
Total Base number, mg KOH/g, ASTM D 2896	17
Zinc, ppm, ASTM D 5185	<10
Chlorine, ppm	<10
Product code	256001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC PEGASO 420

Product Description

ENOC PEGASO 420 oil has been developed for high output medium speed diesel engines requiring “Zinc-free”, LMOA ((Locomotive Maintenance Officers Association) Generation 5 lubricant with 20 TBN for use in locomotive, marine and stationary service applications. This railroad oil is formulated from high quality paraffinic base oils and incorporates significantly Enhances oxidation resistance and alkaline reserve for the use in high sulphur distillate fuels up to 1% mass.

Applications

- Medium speed two-stroke and four-stroke railroad diesel engines
- GM EMD railroad engines (SAE 40)
- General Electric railroad engines (SAE 40)
- Stationary generator sets including BOMBARDIER and Caterpillar engines

Recommendations

PEGASO 420 oil is specially formulated to lubricate locomotive diesel engines which are fitted with silver alloy bearings that require zinc-free lubricants. In addition it is non-chlorine lubricant and the additive system provides excellent control of piston and ring deposits and is highly dispersant for soot control.

Performance Standards

LMOA Generation 5 SAE 40 grade
API Service CF, CF-2
General Electric GEK 61435C General Motors MI-1761D

Always follow equipment manufacturer’s recommendations for required lubricant performance levels and viscosity grades.

Benefits

PEGASO 420 provides:

- Protection of Silver alloy bearings through special zinc-free anti-wear additive system
- Maximum engine protection against corrosive wear
- Effective control of high temperature deposits and highly dispersant to control soot
- Extended oil drain with high sulphur fuel through good base number retention
- High thermal and oxidation stability to maintain long periods of engine cleanliness

SAE Grade	40
Density at 15°C, kg/L, ASTM D4052	0.8892
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	138.2
mm ² /s at 100°C	14.53
Viscosity index, ASTM D2270	104
Pour Point, °C, ASTM D97	-15
Flash Point, (COC), °C, ASTM D92	248
Sulfated Ash, m%, ASTM D 874	2.14
Total Base number, mg KOH/g, ASTM D 2896	20
Zinc, ppm, ASTM D 5185	<10
Chlorine, ppm	<10
Product code	256003

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.





Marine Oils

ENOC STRATA CYL 540 LS



Product Description

ENOC STRATA CYL 540 LS is an advanced marine cylinder engine oil suitable for the lubrication of low speed two stroke cross head engines running on distillates fuels with sulphur content up to 0.5%. The oil is blended from highly refined base oils having maximum oil film strength and modern complex detergent technology additives to provide high performance protection against cylinder scuffing and effective acid neutralizing properties protecting against acid corrosion.

Applications

- 40 BN Cylinder oil for slow speed two stroke engines running on distillates with up to 0.5% Sulphur content
- Two stroke engines, including the latest generation crosshead engines running on very low sulphur fuel

Recommendations

STRATA CYL 540 LS is recommended for modern low speed crosshead two stroke diesel engines where the cylinder lubrication requires specialized high alkaline, optimised TBN properties to provide resistance to bore polishing and the formation of heavy carbon deposits on the piston crown and ring belt areas, also to minimize the build-up of carbon deposits in the combustion chamber and exhaust ports. The high viscosity and lubricity maintain a strong oil film to reduce cylinder and ring wear and provide piston and ring lubrication under the harsh operating conditions.

Performance Standards

Meets the performance requirements of major OEMs like MAN B&W and WIN GD 2-stroke engines.

Benefits

STRATA CYL 540 LS provides:

- Extended liner and piston ring life through effective neutralization of acidic combustion products with low sulphur fuels
- STRATA CYL 540 LS oil has undergone rigorous bench, rigs, engine & field-testing programs
- Piston cleanliness - After more than 1,200 hours of operation we find good external piston cleanliness, at least equal to the reference oil



- Reduced carbon deposits and scuffing related to engine wears associated with low sulphur fuels
- Excellent thermal and oxidative stability to ensure performance of variety of engine conditions
- Specially formulated to ensure reliable operation with IMO compliant very low sulphur fuels
- Excellent corrosive wear protection

ENOC Strata CYL 540 LS	
SAE Viscosity Grade	50
Density at 15°C, kg/L, ASTM D4052	0.9188
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	222
mm ² /s at 100°C	19.5
Pour Point, °C, ASTM D97	>230
Flash Point, °C, ASTM D92	-9
Total Base number, mg KOH/g, ASTM D 2896	40
Product code	152039

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA CYL 540

Product Description

ENOC STRATA CYL 540 is high alkaline cylinder lubricating oil for the lubrication of modern large bore turbocharged crosshead two stroke engines. The oil is blended from highly refined base oils having maximum film strength and modern complex detergent technology additives to provide high performance protection against cylinder scuffing and effective acid neutralizing properties where high sulphur fuels are used.

Applications

- 40 TBN cylinder oils for all modern high output engines requiring SAE 50 grade and operating on sulphur content up to 0.5%
- Recommendation from the relevant engine builder must be fully compiled while selecting cylinder oil as expert views on low sulphur fuels are still evolving

Recommendations

STRATA CYL 540 is recommended for modern low speed crosshead two stroke diesel engines where the cylinder lubrication requires specialized high base number detergent properties to provide resistance to bore polishing and the formation of heavy carbon deposits on the piston crown and ring belt areas, also to minimize the build-up of carbon deposits in the combustion chamber and exhaust ports. The high viscosity and lubricity maintain a strong oil film to reduce cylinder and ring wear and provide piston and ring lubrication under the harsh operating conditions.

Performance Standards

Meets the performance requirements of MAN B&W and Wartsila 2-stroke engines.

Benefits

STRATA CYL 540 provides:

- Extended liner and piston ring life through effective neutralization of acidic combustion products
- Reduced carbon deposits in the combustion chamber, exhaust ports and cylinder and piston ring areas through the latest complex tribased detergent technology
- Minimized scuffing of pistons, ring, and liners
- Excellent corrosive wear protection



ENOC Strata CYL 540		
SAE Viscosity Grade		50
Density @15°C	g/mL	0.9150
Kinematic Viscosity @ 40°C, ASTM D-445	mm ² /s	214.0
Kinematic Viscosity @ 100°C, ASTM D-445	mm ² /s	19.20
Flash point, COC, ASTM D-92	°C	>230
Pour Point, ASTM D-97	°C	-9
Total Base Number, ASTM D-2896	Mg KOH/g	40
Product code		252017

Technical Data*

ENOC STRATA CYL 570

Product Description

ENOC STRATA CYL 570 is high alkaline cylinder lubricating oil for the lubrication of modern large bore turbocharged crosshead two stroke engines. The oil is blended from highly refined base oils having maximum film strength and modern complex detergent technology additives to provide high performance protection against cylinder scuffing and effective acid neutralizing properties where high sulphur fuels are used.

Applications

- Cylinder lubrication in the latest, large bore turbocharged marine crosshead engines requiring 70 TBN oils to meet the most demanding requirements of the residual fuels with sulphur levels >3 % wt
- 70 TBN cylinder oils for specific high output engines where oil consumption has been reduced to meet international marine engine exhaust low emissions using high sulphur fuel

Performance Standards

*Approved by MAN B&W for two- stroke engines.

Also, meets the performance requirements of WIN GD 2-stroke engines.

Recommendations

STRATA CYL 570 is recommended for modern low speed crosshead two stroke diesel engines where the cylinder lubrication requires specialized high base number detergent properties to provide resistance to bore polishing and the formation of heavy carbon deposits on the piston crown and ring belt areas, also to minimize the build-up of carbon deposits in the combustion chamber and exhaust ports. The high viscosity and lubricity maintain a strong oil film to reduce cylinder and ring wear and provide piston and ring lubrication under the harsh operating conditions.

Benefits

STRATA CYL 570 provides:

- Extended liner and piston ring life through effective neutralization of acidic combustion products
- Reduced carbon deposits in the combustion chamber, exhaust ports and cylinder and piston ring areas through the latest complex tribased detergent technology
- Minimized scuffing of pistons, rings, and liners
- Excellent corrosive wear protection



ENOC Strata CYL 570		
SAE Viscosity Grade		50
Density @15°C	g/mL	0.9286
Kinematic Viscosity @ 40°C, ASTM D-445	mm ² /s	213.0
Kinematic Viscosity @ 100°C, ASTM D-445	mm ² /s	19.20
Flash point, COC, ASTM D-92	°C	>230
Pour Point, ASTM D-97	°C	-9
Total Base Number, ASTM D-2896	Mg KOH/g	70
Product code		252007

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA CYL 5100

Product Description

ENOC STRATA CYL 5100 is a high alkaline cylinder lubricating oils for the lubrication of modern large bore turbocharged crosshead two stroke diesel engines. It is blended from highly refined base oils and modern complex detergent technology additives to provide high performance protection against cylinder scuffing through maintaining excellent film strength and effective acid neutralizing properties where high sulphur fuels are used.

Applications

Cylinder lubrication in the latest, large bore turbocharged marine crosshead diesel engines requiring 100 TBN oils to meet the most demanding requirements of the residual fuels with sulphur levels >3 % wt 100 TBN cylinder oils for specific high output engines where oil consumption has been reduced to meet international marine engine exhaust low emissions using high sulphur fuel

Performance Standards

*Approved by MAN B&W for two- stroke engines (ENOC Strata CYL 5100). Suitable for use in other 2-Stroke engine manufacturers like WIN GD.

SAE

50

Recommendations

STRATA CYL 5100 is recommended for modern low speed crosshead two stroke diesel engines where the cylinder lubrication requires specialized high base number detergent properties to provide resistance to bore polishing and the formation of heavy carbon deposits on the piston crown and ring belt areas, also to minimize the build-up of carbon deposits in the combustion chamber and exhaust ports. The high viscosity and lubricity maintain a strong oil film to reduce cylinder and ring wear and provide piston and ring lubrication under the harsh operating conditions.

Benefits

STRATA CYL 5100 provides:

- Extended liner and piston ring life through effective neutralization of acidic combustion products
- Reduced carbon deposits in the combustion chamber, exhaust ports and cylinder and piston ring areas through the latest complex tri-based detergent technology
- Minimize scuffing of pistons, rings, and liners

ENOC Strata CYL Oils	5100
SAE Viscosity Grade	50
Kinematic Viscosity @ 40°C	205
Kinematic Viscosity, mm ² /s @ 100°C	19.5
Flash point, COC, °C	280
Pour Point °C	-12
Total Base Number, ASTM D-2896	100
Product code	252034

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC STRATA CYL N570

Product Description

ENOC STRATA CYL N570 is high alkaline cylinder lubricating oils for the lubrication of modern large bore turbocharged crosshead two stroke diesel engines. The oil is blended from highly refined base oils and modern complex detergent technology additives to provide high performance protection against cylinder scuffing and effective acid neutralizing properties where high sulphur fuels are used.

Applications

- Cylinder lubrication in the latest, large bore turbocharged marine crosshead diesel engines requiring 70 TBN oils to meet the most demanding requirements of the residual fuels with sulphur levels >3 % wt
- 70 TBN cylinder oils for specific high output engines where oil consumption has been reduced to meet international marine engine exhaust low emissions using high sulphur fuel

Performance Standards

Approved by major OEM requirements for two- stroke engines MAN B&W and WIN GD.

SAE

50

Recommendations

STRATA CYL N570 is recommended for modern low speed crosshead two stroke diesel engines where the cylinder lubrication requires specialized high base number detergent properties to provide resistance to bore polishing and the formation of heavy carbon deposits on the piston crown and ring belt areas, also to minimize the build-up of carbon deposits in the combustion chamber and exhaust ports. The high viscosity and lubricity maintain a strong oil film to reduce cylinder and ring wear and provide piston and ring lubrication under the harsh operating conditions.

Benefits

STRATA CYL N570 provides:

- Extended liner and piston ring life through effective neutralization of acidic combustion products
- Reduced carbon deposits in the combustion chamber, exhaust ports and cylinder and piston ring areas through the latest complex tri-based detergent technology
- Minimize scuffing of pistons, rings, and liners
- Excellent corrosive wear protection

ENOC Strata CYL Oils	570
SAE Viscosity Grade	50
Kinematic Viscosity @ 40°C	211
Kinematic Viscosity, mm ² /s @ 100°C	19.5
Flash point, COC, °C	266
Pour Point °C	-9
Total Base Number, ASTM D-2896	70
Product code	152035

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA LSF

Product Description

ENOC STRATA LSF are a range of high-performance Marine Engine oils developed for high output, Trunk Piston Diesel Engines burning distillate or medium sulphur heavy gas oil fuel. They incorporate proven performance dispersant and detergent technology developed to provide long life lubrication in modern and older engines that are operating in coastal shipping or power generation applications.

Applications

- High output Trunk Piston Engines burning distillate fuels where the sulphur content is <0.5%
- Lubrication of turbocharged Trunk Piston Engines used in marine and stationary applications
- Generally, for the smaller, higher rpm medium speed engines also suitable for stand-by generations

Performance Standards And Oem Recommendations

Approved by Wartsila. Suitable for use in major 4-Stroke engine manufacturers like Caterpillar, Nigata, MAN etc.

Benefits

STRATA LSF provides:

- Improved dispersant/detergent technology to reduce deposit formations
- Long engine and oil service lives
- Effective neutralization of combustion acids
- Excellent protection against bearing corrosion
- Superior resistance to oxidation and oil thickening

SAE

30
40
50

Product	LSF 312	LSF 412	LSF 512	LSF 315	LSF 415	LSF 515
SAE Viscosity Grade	30	40	50	30	40	50
Kinematic Viscosity mm ² /s @ 40°C	105.7	145.4	252.1	105.7	145.4	252.1
mm ² /s @100°C	11.98	14.66	21.48	11.98	14.66	21.48
Viscosity Index	100	99	100	100	99	100
Flash Point COC°C	248	250	250	248	250	260
Pour Point,°C	-15	-15	-15	-15	-15	-12
TBN, mg of KOH/g	12	12	12	15	15	15
Product Code	152001	152006	252009	152008	152004	252011

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA MSD

Product Description

ENOC STRATA MSD are a range of generation III high performance engine oils for all types of marine medium speed diesel engines operating on high sulphur residual fuels. They have been developed from the latest complex dispersant and detergent technology to provide long lubrication life and Enhances engine performance particularly in low emission engines and those with anti-bore glazing piston designs.

Applications

- A range of high Total Base Number oils for use in Trunk Piston Engines burning variable quality residual fuel with high sulphur content available in the market
- Provide gear lubrication qualities for reduction gear applications where similar viscosities might be used
- Suitable for high output turbocharged engines
- It is recommended that Strata MSD oils are suitable for centrifuging and/or filtered in accordance with the manufacturer's instructions
- Suitable for WARTSILA NSD, MAN (B&W), KHD DEUTZ, PIELSTICK, NIGATA, MAK, DAIHATSU, MIRLESS BLACKSTONE trunk piston diesel engines (4 Stroke)

Performance Standards

Approved for WARTSILA Marine Engines.

Suitable for use in MAN B&W and Sulzer Marine Engines.

Benefits

STRATA MSD provides:

- Suitability for engines using high sulphur residual or distillate fuels
- Superior resistance to oxidation and oil thickening
- Effective neutralization of acidic combustion products
- Proven detergent/dispersant technology to reduce deposit formation
- Long engine and oil service life
- Excellent centrifugal separator operation

Product Grade	320	330	340	350	355
SAE Viscosity	30	30	30	30	30
Density @ 29.5°C	0.8881	0.8941	0.9001	0.914	0.9152
Kinematic Viscosity, mm ² /s @ 100°C	11.66	11.82	11.89	11.66	11.82
Kinematic Viscosity, mm ² /s @ 40°C	104.3	106.2	107.2	104.3	105.2
Flash Point COC°C	244	250	252	246	250
Pour Point,°C	-15	-15	-15	-15	-15
Total Base Number, ASTM D2896	20	30	40	50	55
FZG fail stage (A8.3/90)	12	12	12	12	12
Product code	252019	152003	152012	252018	252013

Product Grade	420	430	440	450	455	530	540
SAE Viscosity	40	40	40	40	40	50	50
Density @ 29.5°C	0.8924	0.8986	0.9044	0.9099	0.91	0.9053	0.9097
Kinematic Viscosity, mm ² /s @ 100°C	14.55	14.58	14.54	14.66	14.62	19.1	19.15
Kinematic Viscosity, mm ² /s @ 40°C	147	145.2	139.5	142.6	140.8	212.1	214.6
Flash Point COC°C	258	252	254	258	258	252	252
Pour Point,°C	-15	-15	-15	-15	-15	-9	-9
Total Base Number, ASTM D2896	20	30	40.6	50	55	30	40
FZG fail stage (A8.3/90)	12	12	12	12	12	12	12
Product code	152010	152005	152002	252020	252014	252015	252016

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC STRATA MSDO



Product Description

ENOC STRATA MSDO are a range of new generation high performance engine oils for all types of marine medium speed diesel engines operating on high sulphur residual fuels. They have been developed from the latest complex dispersant and detergent technology to provide long lubrication life and Enhances engine performance particularly in low emission engines and those with anti-bore glazing piston designs.

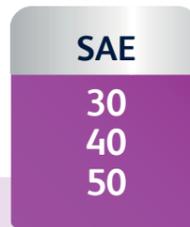
Applications

- A range of high Total Base Number oils for use in Trunk Piston Engines burning variable quality residual fuel with high sulphur content available in the market
- Provide gear lubrication qualities for reduction gear applications where similar viscosities might be used
- Suitable for high output turbocharged engines
- It is recommended that Strata MSDO oils are suitable for centrifuging and/or filtered in accordance with the manufacturer's instructions
- Suitable for MAN (B&W), KHD DEUTZ, PIELSTICK, NIGATA, MAK, DAIHATSU, MIRLESS BLACKSTONE trunk piston diesel engines (4 Stroke)

Performance Standards

Approved for WARTSILA Marine Engines.

Suitable for use in MAN B&W and Sulzer Marine Engines.



Benefits

STRATA MSDO provides:

- Suitability for engines using high sulphur residual or distillate fuels
- Superior resistance to oxidation and oil thickening
- Effective neutralization of acidic combustion products
- Proven detergent/dispersant technology to reduce deposit formation
- Long engine and oil service life
- Excellent centrifugal separator operation

Product Grade	320	330	340	350	355
SAE Viscosity	30	30	30	30	30
Density @ 15°C, Kg/L	0.9008	0.9033	0.9110	0.9166	0.9197
Kinematic Viscosity, mm ² /s @ 100°C	11.66	11.52	11.39	11.66	11.59
Kinematic Viscosity, mm ² /s @ 40°C	104.3	106.3	102.2	104.3	103.2
Flash Point °C	240	252	250	240	246
Pour Point, °C	-15	-15	-15	-15	-15
Total Base Number, mg KOH/g	20	30	40	50	55
FZG fail stage (A8.3/90)	12	12	12	12	12
Product code	252021	152022	152023	252024	252025

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

Product Grade	420	430	440	445	450
SAE Viscosity	40	40	40	40	40
Density @ 29.5°C	0.9011	0.8941	0.9141	0.9221	0.9237
Kinematic Viscosity, mm ² /s @ 100°C	14.55	14.55	14.69	14.45	14.61
Kinematic Viscosity, mm ² /s @ 40°C	147	146	145.2	142.5	143
Flash Point COC°C	252	252	254	270	250
Pour Point, °C	-15	-15	-15	-15	-15
Total Base Number, ASTM D2896	20	30	40	45	50
FZG fail stage (A8.3/90)	12	12	12	12	12
Product code	152026	152027	152028	252033	252029

Product Grade	455	530	540
SAE Viscosity	40	50	50
Density @ 29.5°C	0.9226	0.9131	0.9181
Kinematic Viscosity, mm ² /s @100°C	14.3	19.18	19.10
Kinematic Viscosity, mm ² /s @ 40°C	141.1	212.6	211.65
Flash Point COC°C	250	258	258
Pour Point, °C	-15	-9	-9
Total Base Number, ASTM D2896	55	30	40
FZG fail stage (A8.3/90)	12	12	12
Product code	252030	252031	252032

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

Technical Data*

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC STRATA SMO

Product Description

ENOC STRATA SMO is a SAE 30, 5-6 TBN high quality marine engine system oil developed for high output, low speed, two-stroke crosshead diesel engines burning residual fuel. The system oil has a special low ash detergent/dispersant additive combination to control oxidation and sludge, deposit formation in the crankcase, crosshead, and piston under-crown during oil cooling.

Applications

- Modern large, low rpm two-stroke crosshead engine crankcase lubrication
- Marine Two Stroke stationary power generation engines
- Marine Two Stroke engines with under-crown piston cooling

Performance Standards

Approved by MAN B&W. Suitable for use in WIN GD 2-Stroke Marine engines

Benefits

STRATA SMO provides:

- Superior demulsibility and filterability
- Excellent dispersancy to control the formation of acid sludge
- Neutralization of combustion acids
- Protection against bearing corrosion
- Good oxidation performance to control oil thickening



SAE Viscosity Grade	30
Kinematic Viscosity mm ² /s @ 100°C	11.5
mm ² /s @ 40°C	99.58
Viscosity Index	99
Flash Point, °C	246
Pour Point, °C	-15
Total Base Number ASTM D2896	5.5
Product Code	251001

Technical Data*

ENOC STRATA SUPER DUTY

Product Description

STRATA SUPER DUTY 40 is a monograde diesel engine oil developed for the lubrication of for the highest output diesel engines, it is formulated to give better engine protection and longer drain intervals special for marine fast vessels and generators.

Applications

- Marine engines used offshore service support vessels
- Construction and heavy earthmoving equipment
- Agriculture tractors

Performance Standards

STRATA SUPER DUTY 40 meets and exceeds the International specifications:

API CF Approved MTU (Type 2)

Always follow equipment manufacturer's recommendations for required lubricant performance levels and oil drain intervals.

Benefits

STRATA SUPER DUTY 40 provides:

- An economical product with good all-round performance
- Suitability for use in light turbocharging
- Excellent resistance to oxidation
- Good engine cleanliness with special detergent/dispersant properties
- Good resistance to corrosion



SAE Grade	40
Density @ 15°C, g/mL	0.8961
Kinematic Viscosity mm ² /s @ 40°C	139
mm ² /s @ 100°C	14.75
Viscosity Index	106
Flash Point, COC, °C	242
Pour Point, °C	-30
TBN, ASTM D2896	10.5
Product Code	152036

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Specialties

ENOC EXERTA

Product Description

ENOC EXERTA oils have been developed to meet the special lubrication requirements of percussive type pneumatic tools working under arduous conditions. They are formulated from highly refined mineral oils providing a high film strength and incorporating EP, rust and corrosion inhibitors and tackiness additives to meet the demanding lubrication requirements of pneumatic drill impact.

Applications

- Percussion type pneumatic drills including their use in rock drilling
- Jackhammers used in concrete and pavement breakers
- Lubrication of air-line air tools
- Centralised lubricators used in large crawler-mounted drill rigs

Performance Standards

EXERTA meets and exceeds the following International specification:

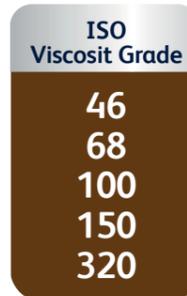
ISO 6743/11 Class P

EXERTA viscosity grade should be selected according to the requirements of the application as specified by the equipment manufacturer.

Benefits

EXERTA provides:

- Superior lubrication performance and anti-wear properties
- Protection of surfaces in wet operating conditions
- Superior thermal and oxidation stability
- Protection against rust and corrosion
- Effective control of foam and air release



ISO Viscosity Grade	46	68	100	150	320
Density at 15°C, kg/L, ASTM D4052	0.882	0.885	0.889	0.892	0.896
Viscosity, Kinematic, ASTM D 445 mm ² /s at 40°C	46	68	100	150	320
Viscosity index, ASTM D2270	98	97	96	96	96
Pour Point, °C, ASTM D97	-15	-15	-12	-12	-9
Flash Point, (COC), °C, ASTM D92	220	232	244	250	260
Product code	227001	227002	227003	227004	227005

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC COOLCUT G SOLUBLE OIL



Product Description

ENOC COOLCUT G SOLUBLE OIL is a premium quality soluble cutting oil manufactured from a mixture of special base oils and carefully balanced blend of emulsifying agents to produce a fluid with maximum cooling ability, excellent lubricity and anti-weld properties, very stable emulsifying agents with biocide to provide good resistance to bacterial growth. COOLCUT G has a good alkalinity reserve with low foaming tendencies.

Applications

COOLCUT G SOLUBLE OIL has been developed to operate over a wide range of carbon steel machining operations. Suitable for light machining such as drilling, planning, milling in soft in normal water conditions, COOLCUT G can also be used for grinding where a clean emulsion is required to rapidly settle-out the grinding metal fines.

WATER DILUTION GUIDE (Parts water to Parts oil)

COOLCUT G emulsion is compatible with water up to 200mg/L hardness, for best result water of low hardness should be used in emulsion preparation and makeup.

OPERATION	DILUTION RATIO
DRILLING	10:1 to 15:1
GRINDING	30:1 to 50:1
REAM/BORE	10:1 to 15:1
TURNING	15:1 to 30:1
SAWING	10:1 to 15:1
MILLING	10:1 to 15:1

General practice is to add the soluble oil to the water.

Benefits

- Efficient in machining and grinding
- Provides a high precision surface finish
- Detergency assists flushing of swarf and settling of fines
- Effective rust protection of machined parts and machine tool
- Longer emulsion life due to better bacterial control
- Alkalinity reserve improves the emulsion's resistance to bacteria
- Non-staining to ferrous and nonferrous metals

Density at 15°C, kg/L, ASTM D4052	0.8865
Viscosity, Kinematic, mm ² /s @ 40°C, ASTM D 445	34
pH at 5% dilution at 20°C, ASTM D1287	9.4
Cast Iron Corrosion Test, @ 20:1, IP 287	Pass
Emulsion Test, @ 20:1	Pass
Product code	271001

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC SECTUS SM 700

Product Description

ENOC SECTUS SM 700 is a multipurpose high quality and high performance semi synthetic biostable metalworking fluid. Recommended for the machining and grinding on a range of materials both steel and non-ferrous metal. SECTUS SM 700 provides high level extreme pressure and high strength lubricating film to handle most demanding machining operations.

Applications

- Most Aluminium alloys, and low to high tensile steel as well as other metals for grinding, turning, drilling, sawing, milling, tapping, and reaming operation
- Difficult machining operations such as gear cutting and boring of medium to high tensile steel
- High speed machining of ferrous and non-ferrous materials
- Centreless surface and cylindrical grinding of ferrous materials

Dilution Recommendations

SECTUS SM 700 is preferred choice for grinding and for machining operations where cooling is of utmost importance. It is usually diluted at oil/water ratios ranging from 3 to 10%. Running at or above 5% ensures better corrosion protection, protect tool and sump.

Note: It is recommended to check the best concentration based on specific operation on-site testing. Never use soluble oil emulsions for cutting Magnesium. Hot magnesium and water are a fire hazard.

Benefits

SECTUS SM 700 provides:

- Stable formula provides long life operation
- Superior hard water tolerance
- Compatible with Most Aluminium, steel alloys, cast iron and yellow metals
- Excellent machining performance across wide range of applications
- Fine emulsion promoting excellent wetting properties that reduce coolant carry off, clean tools and components
- Increased tool life and Enhances surface finish
- Low foam tendency even in the most arduous machining
- Renewable technology that provides environment-friendly characteristics

Caution: Flush the system well when moving from mineral oil to synthetic cutting oil.

Properties	Test Method	Concentrate	Emulsion
Appearance	Visual	Dark green clear fluid	Pale green semi translucent
Density @29.5°C, g/ml	ASTM D4052	0.97-1.00	--
Refractive Index correction factor	IHTP 001	1.0	--
pH @5% in DM water	IHTP 004	--	8.8-9.8
Total Alkalinity, % wt. KOH	IHTP 010	7.3-8.3	--
5% Emulsibility Stability@400 ppm hard water	IHTP 012	--	Stable, no oil separation
Corrosion break point, %	IP 287	--	3.0
Product Code		271011	

Technical Data*

ENOC DEGREASER WB

Product Description

ENOC DEGREASER WB is a heavy duty water based degreaser and cleaner for very effective cleaning of engines and other automotive parts that have a heavy residue of oil grease and dirt. It is a blend of fully biodegradable non-caustic phosphate free, non-acidic and glycol free. It is highly effective to degrease and remove soil from metal, plastic, cement surfaces, marine and heavy industrial environment. It has been specially developed to be non harmful to all parts of the vehicle provided it is diluted to a suitable strength. ENOC DEGREASER WB is eco-friendly and non hazardous.

Applications

- Effectively cleans the exterior of engines and transmissions systems
- At suitable dilutions it is an excellent cleaner for battery terminals, and exhaust pipe dirt
- It can be used for vehicle body parts, wheel rims that have heavy road grim automotive vehicles in
- Automatic car wash places,
- Service centers, Workshops etc.
- For cement concrete, it can be used for the removal of oil, grime and dirtsclean of industry machinery, machine parts, garage, floor, etc...
- Widely used in general cleaning of rigs and drill floor

Recommended Cleaning Method

Prepare the cleaning solution using the dilution directives given below. Spray the area to be cleaned with water to get rid of loose dirt. Apply (using sponge or soft cloth) or spray the prepared solution on the surface to be cleaned. Leave 2-3 minutes for product to act. If required soft scrubbing can be done with suitable non-abrasive cleaning tools. Thoroughly rinse clean with water.

Recommended Dilution With Water

- 1:150 for windows and windshields.
- 1:40 for general vehicle cleaning.
- 1:10 for traffic film removal, degreasing, and wheel/rim cleaning.
- 1:3 - 5 with water for dirty and grimy engine cleaning.
- Use neat to clean extremely dirty and grimy engines.
- Dilution may vary according to the severity of the application.

Benefits

DEGREASER WB provides:

- Effectively emulsifies oil and grease
- Fast acting and penetrating
- Safe to use on engine and other parts of the vehicle
- Bio-degradeable and non-hazardous
- Non harmful to glass and paintwork at the recommended dilutions
- Contains no caustic, acids, phosphates, glycol ether or d-limonene
- No flash point or fire hazard
- Non corrosive and no harmful fumes

Colour	Yellow
Density gm/l @ 25°C	1.02
Odour	Mild detergent odour
Flash Point, °C	Non - Flammable
PH	11 +/- 1
Shelf Life	1 Year
Product Code	223040

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC MEDICINAL WHITE OIL

Product Description

ENOC MEDICINAL WHITE OIL 68 are refined hydro - cracked mixture of hydrocarbons with high degree of purity. They are specially treated to ensure high degree of purity required for these sensitive applications. ENOC Medicinal white oils are specially developed to be used in a variety of cosmetic and pharmaceutical applications subject to the applicable laws and regulations in each country. They meet NSF categories of 3H, H1 and HX-1 of direct and indirect food contacts. These oils are manufactured at Kosher and Halal approved facilities.

Applications

- Used as a component in cosmetic applications like moisturizers, lipsticks, Body lotions, make up powders etc.
- Used in Baby products (shampoos, Baby oils, Bath oils)
- Hair care products
- Excellent skin compatibility so its uses are many folds in human body applications
- Used in bath cubes, anti-perspirant and deodorant sticks

Performance Standards

Meets the requirement of US FDA 21 CFR 172.878 for use in or on food for human consumptions

Meets USFDA 21 CFR 178.3620 (a) for use as a nonfood article intended for use in contact with food for human consumption

Meets the requirements of NSF 3H, H1 and HX1

Meets the requirements of US, British and European pharmacopeia.

Always follow equipment manufacturers recommendations for required lubricant performance levels and viscosity grades.

Benefits

ENOC MEDICINAL WHITE OIL 68 provides:

- High level of safety in human and food applications due to its purity, absence of aromatics, & heavy metals.
- Good lubrication properties for Food grade machinery application.
- Better rust and corrosive protection properties.
- Better releasing agent for Bakery application.
- Highly stable.
- Excellent ingredient of pharmaceutical applications such as ointments, gelatin capsules

ISO Grade		68
Appearance	Visual	Transparent clear, colorless, odorless liquid
Relative Density @ 20 oC	BP/Ph. Eur	0.864
KV mm ² /s @ 40oC	D 445	64-76
Dynamic Viscosity @ 20 oC, mPa.s	BP/Ph. Eur/IP	190.5
Color, Saybolt Min	D 156	+30
Pour Point, oC	D 97	-12
Flash Point, COC, oC	D 92	228
Solubility	BP/Ph. Eur/IP	Passes
Acid/Alkalinity	BP/Ph. Eur/IP	Passes
Sulfur compounds	IP	Passes
Light Absorption@240-280nm	IP	Passes
Polynuclear compounds/	BP/Ph. Eur/IP & US FDA 21 CFR	0.055
Polycyclic aromatic Hydrocarbons	BP/Ph. Eur/IP & US FDA 21 CFR	Passes
Sulphur Compounds	IP	Passes
Product Code		Passes
		248009

Technical Data*

ENOC CHAINSAW CUTTERBAR SPECIAL

Product Description

ENOC CHAINSAW CUTTERBAR SPECIAL lubricant has been developed for the lubrication of chainsaw cutter bars. The correct viscosity ensures maximum film strength and flow characteristics are acceptable. A tackifier is used to minimize oil throw at very high chain speeds. The product also contains EP additives to help in minimizing wear.

Applications

CHAINSAW CUTTER BAR SPECIAL oil is used in machine operated with chainsaw as specified by manufacturers. It is good for lubrication of Chain, Slideways and guides in industrial applications, where the lubricants adhere to the chain surface and protect against wear, rust and corrosion.

In a chainsaw, the chain is driven by the engine and travels at high speeds around a backing plate called the cutterbar. Pegs attached to the chain fit into a groove in the cutter bar. Chainsaw Cutterbar Special is placed into a tank contained in the main body of the saw. An engine driven pump supplies oil into the groove to lubricate the pegs/groove interface.

Benefits

CHAINSAW CUTTERBAR SPECIAL provides:

- Optimum lubrication properties
- Outstanding flow characteristics
- Resist the centrifugal throw-off under heavy cutting and high speed
- Minimized wear

Viscosity Grade	ISO VG 150 / SAE 40
Density at 15°C, kg/L, ASTM D4052	0.8893
Color, ASTM D1500	L 2.5
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	143
mm ² /s at 100°C	15.6
Viscosity index, ASTM D2270	113
Pour Point, °C, ASTM D97	-6
Flash Point, °C (COC), ASTM D92	240
Product code	271021

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.



HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

ENOC HISPIN

Product Description

ENOC HISPIN oils are a range of high quality spindle lubricants for use on high speed spindle bearings. Manufactured from the highest quality base stocks and formulated with special additives that provides reduced spindle wear, protects against rust to give long bearing life.

Applications

- High speed spindle bearings used in machine tools
- Centralised lubrication systems
- Where high speed bearings require low viscosity anti-wear lubricants (ISO 10 to 22 grades)
- Lightly loaded high speed industrial bearings
- Hydraulic systems where low viscosity anti-wear oils are required

Performance Standards

ISO grades	10, 15 and 22
Cincinnati Milacron	P-45 (ISO 22) and P-62 (ISO 10)

Benefits

HISPIN provides:

- Excellent stick-slip properties
- Very low coefficient of friction
- Exceptional resistance to oxidation and deposit formation
- Easy start-up and minimum power loss
- Good protection against rust and corrosion
- Effective load carrying capacity
- Good foam resistance
- Excellent demulsibility

ISO Viscosity Grade	10	15	22
Density at 15°C, kg/L, ASTM D4052	0.8320	0.8392	0.8482
Viscosity, Kinematic, mm ² /s at 40°C, ASTM D 445	10	15	22
Viscosity index, ASTM D2270	95	95	95
Pour Point, °C, ASTM D97	-21	-21	-21
Flash Point, °C (COC), ASTM D92	130	164	176
Copper Corrosion, 3 hrs. @ 100°C, ASTM D 130	1A	1A	1A
Rust Protection, ASTM D665	Pass	Pass	Pass
Product code	246001	246002	246003

Technical Data*

ENOC MACTROL AT

Product Description

ENOC MACTROL AT lubricants have been developed for high performance machine tool lubrication. They are produced from highly refined paraffinic base stocks and provide excellent protection against wear and stick-slip conditions in slideway lubrication. Designed to provide long fluid life and trouble free operation in the lubrication of bearings, gearboxes and circulating systems.

Applications

- Industrial machine tool lubrication for all speeds and loadings
- Machine Tool Slideways
- Centralised lubrication systems and gearboxes
- Advance and speed-change gearboxes with or without electromagnetic clutches and slideways
- Fully compatible with neat and aqueous cutting fluids

Performance Standards

MACTROL AT meets and exceeds the following OEM and International specifications:

ISO	6743/4 HM (Hydraulic)
ISO	6743/4 HG (Stick / Slip)
ISO	6743/13 GA (Slideway)
Cincinnati Milacron	P-47, P-50, P-53
ISO	6743/6 CE (Gear)
ISO	6743/2 FD (Spindle Bearing)

MACTROL AT viscosity grade should be selected according to the requirements of the application as specified by the equipment manufacturer.

Benefits

MACTROL AT provides:

- Excellent anti-stick-slip properties
- Outstanding extreme pressure properties
- Very low coefficient of friction
- Superior thermal and oxidation stability
- Excellent resistance to foaming and Demulsibility properties
- Very good protection against rust and corrosion
- High viscosity index

ISO Viscosity Grade	32	46	68	100	150	220
Density at 15°C, kg/L, ASTM D4052	0.8688	0.8765	0.8788	0.8870	0.8895	0.8926
Viscosity, Kinematic, ASTM D 445						
mm ² /s at 40°C	32	46	68	100	150	220
mm ² /s at 100°C	5.33	6.66	8.58	11.08	14.55	18.75
Viscosity index, ASTM D2270	98	96	96	95	95	95
Pour Point, °C, ASTM D97	-18	-18	-15	-15	-15	-12
Flash Point, °C (COC), ASTM D92	206	226	236	260	260	266
Product code	246123	246124	246121	246125	246126	246122

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



ENOC EN-MOULD GBO

Product Description

ENOC ENMOULD GBO is very effective mold release or parting compounds for cast concrete products. It is formulated from highly refined mineral oils, produces a high quality stain and blemish free concrete finish with minimum incidence of blowholes giving clean uniform surface finish. ENOC ENMOULD GBO provides high level of corrosion protection to metal forms in use, storage and in transit. The oil contains barium and calcium.

Applications

- Supplied ready to use- no need to dilute product. Apply before first pour and re-apply before subsequent pours immediately after stripping and cleaning the mould
- Application can be by spray or fine haired brush. Excessive application should be avoided; only a very thin coating should be applied
- Spray application should only be with a nozzle giving a fine mist. Over application-ponding on horizontal surfaces can give surface retardation

Benefits

ENOC ENMOULD GBO provides:

- Good performance in the prefabrication of aerated concrete with metal forms
- Clean release even with porous materials
- High coverage, Water repellent; prevention of rust
- Suitable for use with potable water structures

Color, ASTM D1500	L 5.0
Density at 15°C, kg/L, ASTM D4052	0.8989
Viscosity, Kinematic, ASTM D 445	
mm ² /s at 40°C	292
mm ² /s at 100°C	22.7
Viscosity index, ASTM D2270	96
Total Acid Number, mg KOH/g, ASTM D974	4.91
Product code	281001

Technical Data*

ENOC AGRI SPRAY OIL



Product Description

ENOC AGRI SPRAY Oil is a severely hydrotreated paraffinic spray oil which provide effective protection against plant disease and pests. It is in a concentrated form with a well-balanced additive formula of emulsifying agents that enable the formation of emulsion to be used as an agriculture spray oil, AGRI Spray Oil is a safe mineral oil exhibiting lowphototoxicity.

ENOC AGRI Spray Oil may be used to combat agriculture and plantain disease, by forming a water insoluble strong film, that is resistant to water wash out.

ENOC AGRI Spray Oil prevents disease and pest infestation by smothering and denying fungi and pest access to the conditions essential for survival. Since the mode of protection is not through chemical poisoning, fungi and pest will not develop resistance to spray oils.

Product Features

ENOC AGRI Spray Oil remains on plants long enough to prevent plant disease, and then evaporate quickly enough to prevent plant damage. It is a superior spray oil whose physical and chemical property have been demonstrated to be successful in controlling plant diseases and pests. The properties which have shown to most directly affect the performance of spray oils are:

Un-Sulphonated Residue (UR) is a measure of the degree of refinement of spray oil. A high UR indicates that the oil has highly saturate, unreactive hydrocarbon content and, consequently, low probability of harming plants. Phyto toxicity increase greatly as UR fall below a value of 90%. ENOC AGRI Spray Oil has an UR of 96% as a minimum.

Distillation Range of spray oil should be narrow enough to ensure that the level of the more volatile, low boiling components and the level of the less volatile, high boiling components are both low. The low boiling components evaporate too quickly to be effective, and the high boiling components reside on the plant too long and could damage it. The distillation range for ENOC AGRI Spray Oil is optimally narrow to work the most effective manner.

Viscosity, the flow characteristics is important. ENOC AGRI Spray Oil with lighter viscosity flows more freely and spreads more evenly over the plant surface

Applications BENEFITS

- Safe spray oil to control leaf disease (e.g.: Sigatoka)
- Can be easily mixed with water and agriculture chemicals
- Use at concentration of 1-2% with necessary fungicide as per agriculture chemicals supplier's doses, uses, precautions and conditions stated on its package.
- Read carefully and comply with the fungicide chemical supplier
- Spraying intervals minimum 15 days depending on infection degree and the agriculture experts' recommendations.
- Avoid spraying in hot sunny periods, spray at morning below 30°

Benefits

ENOC Spray Oil provides

- Less reactive, safe for plants
- It transparent & odorless
- Low volatility and better disease control
- Permit equal distribution of the fungicides on leaves
- Low phototoxicity
- Enhance penetration and optimum contact time on leaves

Density @ 29.5 °C	0.828
Appearance	Clear transparent liquid
Kinematic Viscosity mm ² /s @ 40°C	9.0
Flash point °C (Open Cup)	150
Un-Sulphonated Residue, % min	96
Product code	223054

Technical Data*

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.

*The information prepared provides the typical properties that are considered as representative. Some variation which will not affect performance is possible.

HEALTH AND SAFETY, ENVIRONMENT: The information on this product is available in the ENOC Material Safety Data Sheet (MSDS) as a guide to the precautions and safe handling of this product and its disposal. For further information we recommend you review the MSDS. Handled correctly there are no special precautions suggested.



Appendices

STORAGE AND HANDLING



Organization of Lubricant Stores

General Comments

Lubricants storage is an important function in the maintenance of mobile equipment as date of expired stocks may result in costly delays and damage to equipment. To avoid running short of lubricants, it is important to store using minimum stock control and FIFO (First in/first out) procedures.

It is important to have a person responsible and well trained to control the stores and the ordering and issuing of Lubricant requisitions.

Stock Control

The use of stock control cards or a computerized maintenance program will either serve as a record or can be built into a stock control and re-ordering procedure. This will help greatly to avoid the accumulation of old stocks and streamline orders.

Control of Orders

The use of requisition and issue forms is essential for the control of lubricants supplied to the maintenance department and can be used to reconcile oil usage when compared with equipment record sheets. The control of orders encourages the maintenance mechanics to use and handle lubricants efficiently and to control pilferage of stocks.

Routine Lubricant Stores Inspection

Routine inspection of the stores and storeroom ensures packages are properly handled and check for leaky packages. It also doubles as an audit of stock and that fire regulations are being followed correctly. A well-organized storeroom with all products properly stored with no rubbish lying around and a clean floor with no oil spillage is a good indicator of a well-run store.

Lubricants Storage

Outside storage

Oil drums to be stored on their sides and the bungs should be positioned at 3 and 9 O'clock. In this way when the drum breathes due to ambient temperature changes no rain water or water moisture in the air will be drawn into the drum.

Wooden planks should be used to keep the drums clear of the ground and prevent rusting and damage. At the end of a row of drums secure a wooden wedge to prevent drums from rolling free which can cause danger to workers and drum damage.

Do not store more than three layers high of drums to avoid potential danger in drum handling.

The ideal way to handle drums is by forklift truck fitted with a purpose designed attachment to the forklift of "drum grabber".

The drum mustn't be free to roll since its momentum could be dangerous to workers and other assets. In the absence of such equipment, use a strong wooden ramp to move drums up or down from each layer burst if it hits a solid object.

It is not advisable to drop drums off the back of lorry onto an old tire which is often done since the drum can fall awkwardly and be damaged. It is better to make up a ramp with a controlled movement down the ramp.

Longer term outside storage of drum should be covered with a temporary cover to prevent "eroding of the paint".

The principle of FIFO will help to prevent older stock becoming damaged.

Regular inspection of the drum park is necessary to check there are no leaks and drum markings remain legible.

Indoor Storage

All grease drums should be stored vertically as they have a removable lid. Care must be taken that once a grease drum is opened, its lid should be firmly put back when it is not being used to prevent the ingress of dust and dirt.

APPENDICES

STORAGE AND HANDLING	122
KNOW ABOUT YOUR ENGINE, ENGINE OIL AND ITS CONDITION	123
THE METRICS INTERNATIONAL SYSTEM OF UNITS	124
GLOSSARY OF TERMS	125

KNOW ABOUT YOUR ENGINE, ENGINE OIL AND ITS CONDITION

Grease that is stored will naturally bleed a small amount of oil, so when the drum is opened, the grease and separated oil can be mixed with a hand tool and the grease will become homogenous again.

All products packed in cartons must be stored on racks so each line holds a particular product that can be rotated to comply with FIFO stock rotation.

Drums that use airline pump connections for supply and drums on horizontal stills with tap connection should be in a row and the products are clearly marked on the wall behind each drum. Make sure spillage trays are used and the floor is kept clean. The storage life of most oils and greases stored under proper conditions is 5-3 years after which the product should be re-tested to check if it is in good usable condition. After 7 years the product should be disposed of in a suitable environment-friendly process.

Brake fluids must be stored in a dry indoor storeroom. Drums must be stored horizontally with bungs at 3 and 9 O'clock position so no air can enter. Small packs are to be kept in closed cartons.

Safety Measures

Basic fire-fighting equipment should be provided at important locations around the storeroom area. This includes sand buckets for cleaning up oil spillages and the availability of foam-type fire extinguishers which are especially suited for use in oil fires. Oils and greases generally have "high" flash points >2000C which means they are not considered a "fire hazard". However, if the oil store is close to the occurrence of a local fire situation, then there is a potential risk of a serious fire.

The oil store should carry a large noticeable NO SMOKING sign.

Handling of Lubricants

Workers involved with the handling of oils and greases should be equipped with safety shoes, strong gloves, overalls - which should be dry & cleaned weekly. No attempt should be made to cut holes in oil drums for whatever reason. All drums have two bung holes, one for dispensing the oil and the second for drum breathing. Bulk storage is an efficient way to store lubricants and is used with the appropriate oil dispensing equipment that provides a means to control oil quantity in a clean manner.

Check the bulk tank oil drain point under the tank from time to time to ensure there is no water accumulation particularly when a fresh oil delivery is made. The on-site delivery vehicle should be able to dispense bulk oil and carry oil drum dispensing equipment. In most cases, grease will be dispensed by grease guns in which there is a dedicated gun for each grade of grease and filled in the oil storeroom.

Consequence of Lubricant Contamination

Remember good equipment maintenance saves operational costs. See below how contaminated oil will cause an increase in failures that result in expensive repairs and loss of operating income.

A study carried out some years ago on the cost of industrial equipment failures, stated that > %75 of all hydraulic pump failures were caused by contamination. Little has changed over the years with contamination still the major cause of equipment failure today.

A study showed a dramatic relationship between fluid contamination levels and service life where with improved system cleanliness, it was possible to achieve extended service time between failures from 10 to 50 times.

Change for the better.

Today's engines are efficient and sophisticated machines, often using turbo-charged, multiple camshafts and other features. They also run faster and hotter, placing tremendous demands on motor oil performance. That's why it is essential to follow a strict oil-and-filter-change schedule for your vehicle, as changing the oil and filter removes harmful contaminants that may build up in your oil and leads to severe damage in your vehicle's engine.

A fresh supply of oil with its specially selected additives will restore the protection of your engine needs against corrosion, gum deposits, excessive wear and other combustion problems. Generally, the oil and filter should be changed at approved intervals you must follow your Vehicle Owner's Manual to be sure.

It is highly recommended to check your oil about every 1000 km, or regularly, it helps to prevent many certain problems related to the performance of your vehicle. A regular checking habit is the best practice, especially before every long journey. Prevention is always better than repair.

What is Oil Level?

This ensures that the engine is lubricated properly so it will always be in perfect condition to perform at its optimum level.

Prevention Level from deposits formation and corrosion is excellent. Efficient fuel economy. Comprehensive protection against wear and tear. A satisfactory control over harmful emissions being exhausted into atmosphere.

It is always a vital condition to choose the right oil for your vehicle, for performance and satisfaction. The consumption of oil varies from one vehicle to another, depending on after its

Type of Engine / Vehicle.

Load and working condition of the vehicle. The overall mechanical condition of engine. Operator driving habits.

Quality of fuel.

Weather / Temperature in which the vehicle is operating.

Guide to check the correct level of your Engine Oil:

Switch off your vehicle engine, on ground level, and wait for at least 5 to 10 minutes.

Carefully remove the Dipstick of Engine.

Wipe it clean with a clean cloth and place it back. Remove it again, only after a few seconds.

Check the level of Engine Oil, with the "MIN" & "MAX" marks, given on the dipstick. Add Engine oil, if the level of oil is below the "MIN" mark.

Add oil carefully and in small proportions. Do not add all required at one time.

Check again if the Level of Oil has reached the "MAX" mark. Do not add oil more than "MAX" mark. After doing it, place back the dipstick.

You are all ready to go with peace of mind about your engine's health and safety. Don't forget to repeat the same practice again after 1,000 km or after a long drive.

THE METRICS INTERNATIONAL SYSTEM OF UNITS



The International System of Units (SI) is a modernized version of the metric system established by international agreement. The metric system of measurement was developed during the French Revolution and was first promoted in the U.S. by Thomas Jefferson. Its use was legalized in the U.S. in 1866. In 1902, proposed congressional legislation requiring the U.S. Government to use the metric system exclusively was defeated by a single vote.

SI provides a logical and interconnected framework for all measurements in science, industry, and commerce. The metric system is much simpler to use than the existing English system since all its units of measurement are divisible by 10.

Conversion Factors

The following list provides the conversion relationship between U.S. customary units and SI (International System) units. The proper conversion procedure is to multiply the specified value on the left (primarily U.S. customary values) by the conversion factor exactly as given below and then round off to the appropriate number of significant digits desired. For example, to convert 11.4 ft to meters : $11.4 \times 0.3048 = 3.47472$, which rounds to 3.47 meters. Do not round off either value before performing the multiplication, as accuracy would be reduced. A complete guide to the SI system and its use can be found in ASTM E 380, Metric Practice.

Conversion Symbols

The prefixes and symbols listed below are commonly used to form names and symbols of the decimal multiples and sub multiples of the SI units

Multiplication Factor	Prefix	Symbols
10 ⁹	giga	G
10 ⁶	mega	M
10 ³	kilo	k
10 ²	hecto	h
10 ¹	deka	da
10 ⁻¹	deci	d
10 ⁻²	centi	c
10 ⁻³	milli	m
10 ⁻⁶	micro	∅
10 ⁻⁹	nano	n

Length Conversion Factors

Length

To convert from	to	multiply by
mile (US Statute)	kilometer (km)	1.609347
inch (in)	millimeter (mm)	25.4*
inch (in)	centimeter (cm)	2.54*
inch (in)	meter (m)	0.0254*
foot (ft.)	meter (m)	0.3048*
yard (yd.)	meter (m)	0.9144*

Volume Conversion Factors

Volume

To convert from	to	multiply by
cubic inch (cu in)	cubic meter (cu m)	0.00001639
cubic foot (cu ft)	cubic meter (cu m)	0.02831685
cubic yard (cu yd)	cubic meter (cu m)	0.7645549
gallon (gal)	liter	4.546
Canada liquid gallon (gal)	cubic meter (cu m)	0.004546
Canada liquid gallon (gal)	liter	4.5461760
U.S. liquid* gallon (gal)	cubic meter (cu m)	0.00378541
U.S. liquid* fluid ounce (fl oz)	milliliters (ml)	29.57353
fluid ounce (fl oz)	cubic meter (cu m)	0.00002957

Force Conversion Factors Force

To convert from	to	multiply by
kip (1000 lb)	kilogram (kg)	453.6
kip (1000 lb)	newton (N)	4,448.222
pound (lb)	kilogram (kg)	0.4535924
pound (lb)	newton (N)	4.448222t

Pressure or Stress Conversion Factors Pressure or stress

pound per square foot (psf)	kilogram per square meter(kg/sq m)	4.8824
pound per square foot (psf)	pascal (Pa)	47.88
pound per square inch (psi)	pascal (Pa)	6,894.757
pound per square inch (psi)	megapascal (MPa)	0.00689476

Mass Conversion Factors Mass (weight)

pound (lb)	kilogram (kg)	0.4535924
ton, 2000 lb	kilogram (kg)	907.1848
Grain	kilogram (kg)	0.0000648

Mass (weight) per length

kip per linear foot (klf)	kilogram per meter (kg/m)	0.001488
pound per linear foot (plf)	kilogram per meter (kg/m)	1.488
Mass per volume (density)		
pound per cubic foot (pcf)	kilogram per cubic meter (kg/cu m)	16.01846
pound per cubic yard (lb/cu yd)	kilogram per cubic meter (kg/cu m)	0.5933

Temperature Conversion Factors Temperature

degree Fahrenheit (oF)	degree Celsius (oC)	$t_c = (t_f - 32) / 1.8$
degree Fahrenheit (oF)	Kelvin (K)	$t_k = (t_f + 459.7) / 1.8$
Kelvin (K)	degree Celsius (oC)	$t_c = t_k - 273.15$

Energy and heat

British thermal unit(Btu)	joule (J)	1055.056
calorie (cal)	joule (J)	4.1868E
Btu/degree	F x hr x ft ² W/m ² - degree K	5.678263
kilowatt-hour (kwh)	joule (J)	3,600,000E
British thermal unit per pound (Btu/lb)	calories per gram (cal/g)	0.55556
British thermal unit per hour(Btu/hr)	watt (W)	0.2930711

More Useful Conversion Factors

Quantity	From English	Units To Metric Units	Multiply by*
Length	mile	km	1.609347
	yard	m	0.9144**
	foot	m	0.3048**
	inch	mm	25.40**
Area	square mile	km ²	2.590
	acre	m ²	4047
	acre	hectare	0.4047
	square yard	m ²	0.8361
	square foot	m ²	0.092 90
	square inch	mm ²	645.2
Volume	acre foot	m ³	1 233
	cubic yard	m ³	0.7646
	cubic foot	m ³	0.028 32
	cubic foot	L (1000 cm ³)	28.32
	100 board feet	m ³	0.2360
	gallon	L (1000 cm ³)	3.785

GLOSSARY OF TERMS

The descriptions given here are intended to be of a general nature and may not be an absolute full and scientific explanation of the term.

A

Abrasion - Wearing, grinding, or rubbing away by friction. Abrasion is usually due to the presence of foreign matter such as dirt, grit, or metallic particles in the lubricant.

Absolute Viscosity - The product of Kinematics Viscosity and Density. Absolute Viscosity = Kinematic Viscosity x Density

Acid - Corrosive solution formed by the combination of hydrogen and oxygen atoms with metal or metallic radicals. Acidic solutions may be neutralized with a base or alkaline solution.

Additive - Material added to a base stock to change its properties, characteristics or performance.

Adhesion - The property of a lubricant that causes it to cling or adhere to a solid surface. Wear occurring when surfaces contact, weld together and shear off.

AGMA - American Gear Manufacturers' Association. Sets viscosity and performance standards for gear lubricants.

Air Entrainment - The incorporation of air in the form of bubbles dispersed in a fluid. Common when an improper amount of antifoam agent is added to reduce foaming.

Air Entrapment - Small bubbles that form that cannot disperse in a fluid.

Ambient Temperature - Temperature of the air surrounding the point of application.

Anhydrous - Free of water.

Antifoam - Additive used to suppress the foaming tendency of lubricants in service. Improper amounts of antifoam will lead to air entrapment which also leads to lubrication problems.

Antifreeze - Solution in an engine cooling system that lowers the coolant's freezing point and raises its boilingpoint.

Anti-wear - Additives that form thin tenacious films on loaded parts to prevent metal-to-metal contact.

API - American Petroleum Institute is a group of companies in petroleum and related fields.

Apparent Viscosity - The viscosity determined by using instruments such as the Cold Cranking Simulator (CCS), Mini Rotary Viscometer (MRV) and High Temperature/High Shear. Viscosity is expressed in units of centipoise (cP).

Ash - Metallic deposits formed in the combustion chamber and other engine parts during high temperature operation.

Ash (Sulphated) - The ash content of an oil, determined by charring the oil, treating the residue with sulphuric acid, and evaporating to dryness. Expressed as % per mass. ASLE - American Society of Lubrication Engineers. Asperities - Hills and valleys of metal surfaces.

ASTM - American Society of Testing and Materials.

Auto-ignition Point - Temperature at which an oil will ignite without a source of ignition.

B

Ball Bearing - A rolling type of bearing containing rolling elements in the form of balls.

Base Stock - The base fluid, usually a refined petroleum fraction or a selected synthetic material, into which additives are blended to produce finished lubricants.

Bases - Compounds that react with acids to form salts plus water. Alkalis are water soluble bases used in petroleum refining to remove acidic impurities. Oil soluble bases are included in lubricating oil additives to neutralize acids formed during the combustion of fuel or oxidation of the lubricant.

Bearing - An object that supports weight and reduces friction.

Biodegradable - A material is said to be biodegradable when it can be broken down, within given parameters of time and environment, by naturally occurring bacteria into simple substances which do not harm the environment.

Blow-by - Passage of unburned fuel and combustion gases past the piston rings of internal combustion engines, resulting in fuel dilution and contamination of the crankcase oil.

Boundary Lubrication - Lubrication between two rubbing surfaces without the development of a full fluid lubricating film. It occurs under high loads and requires the use of antiwear or extreme-pressure additives to prevent wear.

Bright Stock - A heavy residual type of lubricant base stock characterized by a low pour point and high viscosity index (VI). Its use promotes a reduction in scuffing and a reduction in oil consumption.

BTU - British Thermal Unit, a unit of energy.

By Pass - An alternate path for a flow of gas or liquid.

By Pass Filtration - A system of filtration in which only a portion of the total flow of a circulating fluid system passes through a filter at any instant or in which a filter having its own circulating pump operates in parallel to the main flow.

C

Carbon Residue - Coked material remaining after an oil has been subjected to high temperatures. Cavitation - Formation of a void due to reduced pressure in a lubricating grease dispensing system. Centipoise - Unit of apparent viscosity.

Centistoke (cSt) - Unit of Kinematic Viscosity.

Cetane Number - Measure of ignition quality of a diesel fuel. The higher the Cetane Number, the easier a high-speed, direct injection engine will start, and the less "white smoking" and "diesel knock" after start up.

Cetane Number Improver - An additive that boosts the Cetane Number of a fuel.

Chain Stopper - See Oxidation Inhibitor.

Channel Point - See Pour Point. As you reduce the temperature of an oil toward the pour point, you reach a point where you can run your finger through an oil and it will not fill in the trench you leave in the oil. Example: the gearing in the rear end of a car - Although the gears might move, the gear oil will not flow back into the gear to lubricate it readily.

Chemical Stability - The tendency of a substance or mixture to resist chemical change.

Cleveland Open Cup (C.O.C.) - An apparatus used to determine the flash and fire points of petroleum products other than fuel oils and those having an open cup flash below 79°C (175°F).

Cloud Point - The temperature at which a cloud of wax crystals appears when a lubricant or distillate fuel is cooled under standard conditions. Indicates the tendency of the material to plug filters or small orifices under cold weather conditions.

Coefficient of Friction - Number obtained by dividing the friction force resisting motion between two bodies by the normal force pressing the bodies together.

Cohesion - That property of a substance that causes it to resist being pulled apart by mechanical means.

Cold Cranking Simulator (C.C.S.) - An intermediate shear rate viscometer that predicts the ability of an oil to permit a satisfactory cranking speed to be developed in a cold engine.

Combustion Chamber - The space between the piston and cylinder head in an internal combustion engine where the charge of fuel plus the air is burned to produce power.

Compatibility - A lubricant's ability to be mixed with another lubricant without detriment to either lubricant. Also, the ability to come into contact with other components or materials without detrimental effects.

Compound - Substance formed by the combination of two or more elements with differing physical and chemical properties than the combining elements.

Compression Ignition - Ignition of fuel by the heat generated in compressing the air charge, as in the diesel engine.

Condensation - Water vapors that form from moist air.

Consistency - The degree to which a semi-solid material such as grease resists deformation.

Coolant - Fluid used to remove heat.

Copper Strip Corrosion - Qualitative measure of the tendency of a liquid to corrode pure copper.

Corrosion - Destruction of a metal by chemical or electro-chemical reaction with its environment.

Corrosion Inhibitor - Additive that protects lubricated metal surfaces from chemical attack by water or other contaminants.

Cracking - Refining process in which large molecules are broken down into smaller molecules. Cracking takes place to some extent whenever high molecular material is heated strongly, but is increased by catalysts.

Crankcase - The housing in which the crankshaft and many other parts of the engine operate. On a two-cycle engine, the area in which the fuel/oil mixture is drawn before being transferred to the cylinder.

Crankcase Dilution - When unburned fuel finds its way past the piston rings into the crankcase oil, where it dilutes or thins out the engine lubricating oil.

Crude Oil - Naturally occurring petroleum, before any refining or treatment.

D

Defoamant - Additive used to allow air in the oil to escape more rapidly. All oils will "foam", but an oil that does not release the air readily, is said to "foam".

Demulsibility - The ability of an oil to separate from water upon standing.

Density - Mass per unit of volume.

Detergent - Additive to keep engine parts clean. In motor oil formulations, the most commonly used detergents are metallic soaps with a reserve of basicity to neutralize acids formed during combustion.

Detonation - Uncontrolled burning of the last portion (end gas) of the air/fuel mixture in the cylinder of a spark-ignition engine. Also known as "knock" or "ping".

Dewaxing - Removal of wax from a base oil in order to reduce the pour point.

Differential - Set of gears that transfer the power from the drive shaft to the drive wheels and allow those wheels to turn at different speeds.

Dilution of Engine Oil - See Crankcase Dilution.

Dispersant - Additive that helps keep solid contaminants in a crankcase oil in colloidal suspension, preventing sludge and varnish deposits on engine parts. Usually nonmetallic “ashless”, and used in conjunction with detergents.

Distillation - Separation of a mixture of liquids with different boiling points by progressively raising the temperature. In a refinery distillation unit the temperature rises continuously from the top to the bottom of the column and different fractions or cuts are drawn off at different heights.

Distillation Test - The basic test used to characterize the volatility of a gasoline or distillate fuel.

Drag - Resistance to movement caused by oil viscosity.

Dropping Point - Temperature at which a grease passes from a semi-solid to a liquid state under specified test conditions.

Drum - A cylindrical container which holds 55 gallons of oil or approximately 400 pounds of grease type products. There are also, half-size drums which hold approximately 30 gallons of oil.

Dynamic Viscosity - Viscosity of a liquid as measured in a rotational instrument, as distinct from the kinematic viscosity where the liquid falls through a capillary tube under its own weight.

E

E.G.R. (Exhaust Gas Recirculation) Valve - System to reduce automotive emission of nitrogen oxides (NOx). It routes exhaust gases into the intake manifold where they dilute the air/fuel mixture and reduce peak combustion temperatures, thereby reducing the tendency for NOx to form.

Elastohydrodynamic Lubrication (EHD or EHL) - Lubrication characterized by high unit loads and high speeds in rolling elements where the mating parts deform elastically due to the incompressibility of the lubricant film under very high pressure.

Elastomer - A rubbery type of material.

Emissions - Term used generically to refer to the various components of the engine's exhaust.

Emulsifier - Substance used to promote or aid the emulsification of two liquids and to enhance the stability of the emulsion.

Emulsion - Mixture of two liquids which are not soluble with each other, i.e., oil-in-water cutting. Water-in-oil is classified as an inverted emulsion.

Engine Deposits - Hard or persistent accumulation of sludge, varnish and carbonaceous residues due to blow-by of unburned and partially burned fuel, or the partial breakdown of the crankcase lubricant. Water from the condensation of combustion products, glycol, carbon, residues from fuel or lubricating oil additives, dust and metal particles also contribute.

Entrainment - Dispersion of a solid, liquid or gas in a fluid without solution.

EP (Extreme Pressure) - Lubrication regime where surfaces are sliding against each other under heavy load. The expression was coined for the condition present in hypoid gears in automotive rear axles.

EP (Extreme Pressure) Lubricants - Lubricants that impart to rubbing surfaces with the ability of carrying greater loads than would be possible with ordinary lubricants without excessive wear or damage.

Ester - An organic compound formed by the reaction of an acid (organic or inorganic) with an alcohol. Ethanol - Ethyl alcohol mainly formed through fermentation. (Alcoholic drinks, component in “gasohol”) Ethylene Glycol - A colorless, syrupy liquid, used as an antifreeze in cooling and heating systems.

F

Feedability - The ability of the lubricating grease to flow to the suction of a dispensing pump at the rate equal to the pump delivery capacity.

Fillers - A term normally used to denote something nonchemical added to an oil or grease, i.e., moly, graphite, zinc oxide.

Filter - Any device or porous substance used for cleaning liquid or gas by removing suspended matter.

Fire Point - The temperature at which an oil, when subjected to a source of ignition or flame, will ignite and continue to burn.

Fire Resistant Fluid - A fluid, difficult to ignite, that shows little tendency to propagate flame.

Flash Point (C.O.C.) - The temperature to which a combustible liquid must be heated to give off substantial vapor to form a momentarily flammable mixture with air when a small flame is applied under specific conditions.

Fluid Friction - Occurs between the molecules of a gas or liquid in motion, and is expressed as shear stress. Unlike solid friction, fluid friction varies with speed and area.

Foam - An agglomeration of gas bubbles separated from each other by a thin liquid film. If an oil is said to not foam, the small air bubbles will quickly combine, become larger bubbles, and then break to vent to the atmosphere. If this action occurs slowly, the oil is said to foam.

Four Ball Test - Machine used to evaluate a lubricant's antiwear qualities, frictional characteristics, or load carrying capabilities. There are four steel 1/2 inch balls. Three of the balls are held together in a cup filled with lubricant while the fourth ball is rotated against them.

Four Stroke Engine - An internal combustion engine which requires two revolutions of the crankshaft to complete all of its cycles.

Friction - Resistance to motion of one object over another. Friction depends on the smoothness of the contacting surfaces, as well as the force with which they are pressed together.

Fuel Dilution - The amount of unburned fuel present in the lubricant. This test will indicate problems such as fuel line, injector, carburetor and pump leaks. Fuel dilution is accurate down to less than % 0.5.

Full Film Lubrication - Complete separation of mated surfaces, metal contact.

Full Flow Filtration - A system of filtration in which the total flow of a circulating fluid system passes through a filter.

G

Gears - Toothed machine parts for transmitting power from one shaft to another.

Gravity - The mass/volume relationship of lubricants used in determining volume requirements for a specific mass of products (packaging).

Grease - Lubricant composed of an oil or oils thickened with a soap, soaps or other thickener to a semi-solid consistency.

Gum - A rubber-like, sticky deposit black or dark brown in color resulting from the oxidation of lubricating oils from unstable constituents in gasoline which deposit during storage or use.

H

Heat Transfer - Taking heat from one part of a system and releasing it into another.

Hydraulic Oil - Light oils designed specifically for use in hydraulic systems, however, lending themselves to other applications as well.

Hydrocarbons - Compounds containing carbon and hydrogen. Petroleum consists chiefly of hydrocarbons. Also known as organic compounds.

Hydrofinishing - A process for treating raw extracted base stocks with hydrogen to saturate them for improved stability.

Hydrolytic Stability - Ability of additives and certain synthetic lubricants to resist chemical decomposition (hydrolysis) in the presence of water.

Hypoid Gear Lubricant - A gear lubricant having extreme pressure characteristics for use in hypoid type gears (as in the differential of an automobile).

I

Inhibitor - Additive that improves the performance of a petroleum product by controlling undesirable chemical reactions, i.e., oxidation inhibitor, rust inhibitor etc.

Insolubles - Contaminants found in used oils due to dust, dirt, wear particles or oxidation products.

ISO (International Standards Organization) - Among other responsibilities, they establish viscosity standards for industrial oils. Viscosity is measured in centistokes at 40°C. This method is known as Kinematic Viscosity.

J

JAMA - Japanese Automobile Manufacturers Association Inc.

Journal - Part of shaft or axle that rotates or angularly oscillates in or against a bearing or about which a bearing rotates or angularly oscillates.

K

Keg - Container which would typically hold 16 gallons of oil or approximately 120 pounds of grease-type product. Also called a "quarter drum".

Kinematic Viscosity - Measure of a fluid's resistance to flow under gravity at a specific temperature (usually 40°C or 100°C).

L

Low Pour Point - Means an oil that will pour at low temperatures.

Lubrication - Control of friction and wear by the introduction of a friction reducing film between moving surfaces in contact. May be a fluid, solid, or plastic substance.

M

Material Safety Data Sheets (MSDS) - Data sheet which gives vital information regarding transportation, safe handling and storage of a lubricant or other product.

Micron - A millionth of a meter, or 0.0000394 inch.

Mineral Oil - Term applied to a wide range of products with viscosities within a range of products considered as petroleum type oil.

Mini Rotary Viscometer - An instrument used to measure the borderline pumping temperature (BPT) of engine oils from 0°C to -40°C. BPT is the lowest temperature at which engine oil can be supplied in adequate amounts to the oil pump inlet.

Multiviscosity/Multi Grade Oil - An oil meeting both cold temperature viscosity requirements and high temperature viscosity requirements. In SAE viscosity descriptions, a number with a "W" behind it has met certain cold temperature requirements, a number without a "W" behind it has met certain high temperature requirements.

N

Naphthenic - A type of petroleum fluid derived from naphthenic crude oil, containing a high proportion of closed-ring methylene groups.

Newtonian Flow - Occurs in a liquid system where the rate of shear is directly proportional to the shearing force, as with straight grade oils which do not contain polymeric viscosity modifier. When rate of shear is not directly proportional to the shearing force, flow is non-Newtonian, as it is with oils containing viscosity modifiers.

Nitration - Process where nitrogen oxides attack petroleum fluids at high temperatures, often resulting in viscosity increase and deposit formation. Only occurs in applications where fuel is used.

N.L.G.I. - National Lubricating Grease Institute, an industry group that monitors grease and sets penetration standards for grading greases.

O

Octane - Measure of the anti-knock properties of gasoline.

Oil - A greasy liquid of vegetable, animal, mineral or synthetic origin.

Oiliness - Property of a lubricant that produces low friction under conditions of boundary lubrication, the lower the friction, the greater the oiliness.

Organic Acid - An organic compound, with acid properties, obtained from organic substances such as animal, vegetable and mineral oils, i.e. a fatty acid.

Oxidation - Occurs when oxygen attacks fluids. The process is accelerated by heat, light, metal catalysts and the presence of water, acids, or solid contaminants. It leads to increased viscosity and deposit formation.

Oxidation Inhibitor - Substance added in small quantities to an oil product to increase its oxidation resistance, thereby lengthening its service or storage life. Also called an antioxidant.

Oxidation Stability - Resistance of an oil product to oxidation and, therefore, a measure of its potential service or storage life.

P

Paraffin - Hydrocarbons belonging to the series starting with methane (CH₄). Paraffins are saturated with respect to hydrogen. High molecular weight paraffins are solid such as paraffin wax.

PCV (Positive Crankcase Ventilation) Valve - An emissions control device that allows gases from the crankcase to be reintroduced into the intake.

Penetration - A test in which a cone is dropped into a grease to measure the penetration or how hard or soft the grease is at room temperatures. The cone penetrates farther in a soft grease and therefore has a higher penetration number. This penetration relates to an NLGI number. A number 0 grease is called an NLGI grade and will be "softer" than an NLGI 1 or 2 grade.

pH - Term used to denote the degree of acidity or alkalinity of aqueous solutions. Values of pH run from 0-14, 7 indicates neutrality, numbers less than 7 indicate increasing acidity, and numbers greater than 7 indicate increasing alkalinity.

Poise - Unit of viscosity, defined by the shear stress required to move one layer of fluid along another over a total thickness of one centimetre at a velocity of one centimeter per second. This viscosity is independent of fluid density, and directly related to flow resistance.

Polishing (bore) - Excessive smoothing of the surface finish of the cylinder bore or cylinder liner in an engine to a mirror-like appearance, resulting in depreciation of ring sealing and oil consumption performance.

Polymerization - Chemical combination of similar type molecules to form larger molecules.

Pour Point - An indicator of the ability of an oil or distillate fuel to flow at cool operating temperatures. It is the lowest temperature at which the fluid will flow when cooled under prescribed conditions.

Pour Point Depressant - Additive used to lower the pour point or lower temperature fluidity of a petroleum product.

Preignition - Ignition of the fuel/air mixture in a gasoline engine before the spark plug fires. Often caused by incandescent fuel or lubricant deposits in the combustion chamber, it wastes power and may damage the engine.

Propylene Glycol - A non-toxic liquid used as an coolant/antifreeze in cooling and heating systems.

Pumpability - The low temperature, low shear stress-shear rate viscosity characteristics of an oil that permit satisfactory flow to and from the engine oil pump and subsequent lubrication of moving components.

R

Refining - Series of processes to convert crude oil and its fractions into a finished petroleum product, which may include cracking, catalytic cracking, polymerization, alkylation, reforming, hydrocracking, hydrofoaming, hydrogenation, hydrogen treating, Hydrofining®, solvent extraction, dewaxing, de-oiling, acid treating, clay filtration, deasphalting etc.

Rerefining - A process of reclaiming used lubricant oils and restoring them to a condition similar to that of virgin stock by filtration, clay adsorption or more elaborate methods.

Ring Sticking - Freezing of a piston ring in its groove in a piston engine or reciprocating compressor due to heavy deposits in the piston ring zone.

Rust - Slow oxidation of iron.

Rust Preventative - Compound for coating iron surfaces with a film that protects against rust. Commonly used to preserve equipment in storage.

S

SAE - Society of Automotive Engineers.

SAE Grade - Numbers applied to automotive lubricants to indicate their viscosity range.

Saybolt, Saybolt Universal Seconds, SUS or SSU - The most common viscosity measurement prior to the international acceptance of centistokes, SUS measures are now obsolete. To convert measurements from SUS at 100°F to an approximate value in cSt at 40°C (ISO viscosity grade), divide the SUS value by 5.

Scuffing - Abnormal engine wear due to localized welding and fracture. It can be prevented through the use of antiwear, extreme-pressure and friction modifier additives. See adhesion.

Semi Fluid - Any substance having attributes of both a liquid and a solid. Similar to semi solid but being more closely related to a liquid than a solid.

Shear Stability - Ability of a lubricant to withstand shearing forces without being degraded to lower viscosity or consistency.

Sludge - A thick, dark residue, normally of mayonnaise consistency, that accumulates on non-moving engine interior surfaces. Generally removable by wiping unless baked into a carbonaceous consistency, its formation is associated with insolubles overloading the lubricant.

Soap - A thickener in grease.

Solid - Any substance having definite shape which it does not readily relinquish. More generally, any substance in which the force required to produce a deformation depends upon the magnitude of the deformation rather than the rate of deformation.

Stoichiometric - Ratio of fuel to air where the exact proportions for complete reaction of both, with none left over, are present.

Stoke (St) - Kinematic measurement of a fluid's resistance to flow defined by the ratio of the fluid's dynamic viscosity to density.

Supercharger - A device for increasing the pressure and hence the mass of air and fuel burned on each firing stroke. Driven by the crankshaft; therefore, displacement is fixed and directly related to engine RPMs.

Surface Tension - The contractile surface force of a liquid by which it tends to assume a spherical form and to present the least possible surface. It is expressed in dyne/cm or ergs/cm.

SUS - See Saybolt.

T

Thermally Stable - Ability to withstand temperatures without decomposing. Not to be confused with oxidation stability where oxygen must be present and oxidation rather than decomposition.

Thickener - The metallic soap or other material used to combine with oil or other lubricating fluid to make grease.

Thixotropy - Decrease in consistency, as a result of shearing/ followed by an increase in hardening after the shearing stops.

Torque - The twisting force with which the engine's crankshaft actually rotates, measured in foot-pounds.

Total Base Number (TBN) - The quantity of base, expressed in milligrams that is required to neutralize all acidic constituents present in one gram of sample.

Total Acid Number (TAN) - The quantity of acid, expressed in terms of the number of milligrams that are required to neutralize all basic constituents present in one gram sample.

Turbine - A device consisting of blades attached to a disc or rotor which converts flow into rotary action.

Turbocharger - A device for increasing the pressure and hence the mass of air and fuel burned on each firing stroke. A turbine of exhaust gases drives a compressor: therefore, efficiency is variable and related to exhaust pressure.

V

Vapor Lock - Condition wherein the fuel boils in the fuel system forming bubbles which retard or stop the flow of fuel to the engine.

Viscosity - Measure of a fluid's resistance to flow.

Viscosity Index (VI) - Relationship of viscosity to temperature of a fluid. High viscosity index fluids tend to display less change in viscosity with temperature than low viscosity index fluids.

Viscosity Index Improver (VII) - Additive to "improve or increase the viscosity index". A VI improver increases an oil's resistance to thinning as it is heated. It is commonly used in multi-viscosity or multi-grade oils. Since a VI improver increase the viscosity as well as the viscosity index, it must be taken into consideration when formulating oil. (Example: Taking an oil in the SAE 30 range, adding a VI improver could give an oil like a SAE 40).

Viscosity Modifier - See VII. Additive, usually a high molecular weight polymer, that reduces the tendency of an oil's viscosity to change with temperature.

Z

Zinc (ZDP) - Commonly used name for zinc dithiophosphate, and antiwear/oxidation inhibitor chemical.

Original Equipment Manufacturer Approval





اينوك
enoc

ENOC Marketing LLC - Lubricants Marketing

Emirates National Oil Company Ltd (ENOC) L.L.C.

ENOC Complex, P.O. Box 6442, Dubai, United Arab Emirates

Telephone: +971 4 3134622 | Fax: +971 4 3134616

feedback@enoc.com | www.enoclubricants.com | enoc.com