

LUKOIL Marine Lubricants

PRODUCTS 



## ABOUT

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### **Photo**

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## CONTENTS

04 GENERAL

05 MAIN GRADES

06 SECONDARY GRADES

06 MINERAL OILS

08 SYNTHETIC OILS, SPECIALITIES AND GREASES

10 VISCOSITY CLASSIFICATION

11 VISCOSITY-TEMPERATURE DIAGRAM

## GENERAL

LUKOIL Marine Lubricants offers a full range of the highest quality marine products in all major ports around the globe. As your trusted partner we ensure the best possible service. This product brochure provides technical information about our marine grade range.

LUKOIL Marine Lubricants' secondary grade range consists of TITAN, RENOLIN, RENISO and RENOLIT, which are trademarks of Fuchs Europe Schmierstoffe GmbH. These are exclusively produced for LUKOIL Marine Lubricants. For further detailed technical information please refer to the corresponding Technical Data Sheet (TDS) or Safety Data Sheet (SDS).

## HEALTH, SAFETY AND ENVIRONMENTAL PROTECTION

LUKOIL Marine Lubricants operates in strict compliance with LUKOIL's Health, Safety and Environment policy. Operating procedures are in place to ensure the health and safety of employees, contractors, customers and the public. LUKOIL Marine Lubricants is committed to act in a socially responsible manner in protecting the environment and preserving natural resources. A comprehensive Health, Safety and Environment Management System has been developed and is operated worldwide to achieve and maintain these objectives.

LUKOIL Marine Lubricants encourages open dialogue with all parties on matters of health, safety and the environment. For more information, please visit [www.lukoil.com](http://www.lukoil.com).

The user is responsible for evaluating and using products in a safe manner and is expected to comply with all applicable laws and regulations. On request, Safety Data Sheets are available for all products. They describe the products in terms of safety in use, handling and transportation. For further information about LUKOIL Marine Lubricants, please contact your LUKOIL Marine Lubricants Representative or visit our website at [www.lukoilmarine.com](http://www.lukoilmarine.com).

## MAIN GRADES

	Grade	BN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	SAE	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Marine Cylinder Lubricants									
NAVIGO 140 MCL	60	140	980		22		-6	240	The NAVIGO MCL range is an entire range of marine cylinder lubricants for low-speed engines with excellent deposit control, anti-wear properties and scuffing prevention.
NAVIGO 100 MCL	50	100	960		20		-6	240	NAVIGIO 70 MCL AW, NAVIGO 100 MCL and NAVIGO 140 MCL are suitable for HFO and low sulphur fuel oil (LSFO<1.5%S) operation. Depending on engine design, short term operation on very low sulphur fuel oil (VLSFO<0.5%S) or ultra low sulphur fuel oil (ULSFO<0.1%S) is possible.
NAVIGO 70 MCL AW	50	70	935		20		-6	240	
NAVIGO MCL Extra	50	40	913		19		-6	230	Marine cylinder lubricant for all low-speed two-stroke diesel engines running on LSFO (<1.5%S), VLSFO (<0.5%S) and ULSFO (<0.1%S).
NAVIGO MCL Ultra	50	20	903		18.5		-6	230	Marine cylinder lubricant for all low-speed two-stroke diesel engines running on VLSFO (<0.5%S) and ULSFO (<0.1%S) including LNG, methanol, ethane and LPG.

	Grade	BN	Density kg/m <sup>3</sup>	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	SAE	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
System Oil									
NAVIGO 6 CO	30	6	891		11.5		-6	220	Alkaline marine crankcase lubricant for low-speed marine diesel crosshead engines. Outstanding thermal and oxidation stability and detergency.

	Grade	BN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	SAE	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Trunk Piston Engine Oils									
NAVIGO TPEO 55/40	40	55	923		14.5		-6	230	NAVIGO TPEO range for highly rated medium-speed diesel engines. These oils provide excellent thermal and oxidation stability with outstanding detergency and dispersancy. This leads to exceptional deposit control especially in oil-cooled piston undercrowns. The range provides optimal adaption to the sulphur content of the fuel in use due to the BN range from BN 15 to BN 55.
NAVIGO TPEO 50/40	40	50	919		14.5		-6	230	
NAVIGO TPEO 40/40	40	40	915		14.5		-6	230	
NAVIGO TPEO 30/40	40	30	911		14.5		-6	230	
NAVIGO TPEO 20/40	40	20	901		14.5		-6	230	
NAVIGO TPEO 15/40	40	15	898		14.5		-6	230	
NAVIGO TPEO 30/30	30	30	905		11.5		-6	230	
NAVIGO TPEO 20/30	30	20	899		11.5		-6	230	
NAVIGO TPEO 15/30	30	15	898		11.5		-6	230	
NAVIGO TPEO 40 Ultra	40	10	891		14.5		-15	230	High quality alkaline lubricants recommended for marine trunk piston engines running on ISO 8217 type DMA/DMB/DMC fuels, especially designed for applications where a higher level of detergency/dispersancy and liner lacquer control is needed.
NAVIGO TPEO 30 Ultra	30	10	891		11.5		-15	230	

	Grade	BN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	SAE	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Trunk Piston Engine Oils									
AVANTGARDE M 40	40	9	898		14.5		-15	230	Premium quality mineral-based monograde engine oils offering extended oil change intervals in latest generation high-speed marine and power generation four-stroke turbocharged engines running on distillate fuel with sulphur contents from zero up to 1%wt.
AVANTGARDE M 30	30	9	898		11.5		-15	220	
EFFORSE 4004	40	5.6	888		14.3		-12	268	EFFORSE 4004 is a high performance low-ash mineral gas engine oil designed for marine and stationary trunk piston engines running on natural gas and associated petroleum gas.

## SECONDARY GRADES

### MINERAL OILS

	Grade	BN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	SAE	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Other Engine Oils									
NAVIGO DD 40	40	7	894	143	15	100	-15	225	High quality, low ash, heavy duty, detergent diesel engine oil specifically designed for Detroit Diesel two-stroke engines and other engines that require API-CF SAE 40 engine oils.
AVANTGARDE Ultra 15W-40	15W-40	10	886	104	14.2	135	-30	224	Mineral-based multigrade engine oil for the latest generation of heavy duty four-stroke turbocharged engines, allowing for extended time between overhauls. API CI-4/SL specified.
TITAN Cargo MC 10W-40	10W-40		867	100	14.5	146	-42	220	Long-life and fuel economy oil for high-speed diesel engines with outstanding cold start performance.
TITAN 2T 100S			876	47.5	8.44		-42	130	Fully synthetic high performance two-stroke engine oil. Burns without leaving deposits on the spark plug. Best adapted for outboard engines.
LATITUDE 2T Special			871	37	6.5	128	-45	108	

	Grade	TAN	Density kg/m <sup>3</sup>	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Hydraulic Oils									
RENOLIN B 15 HVI	15	0.5	859	15	3.8	151	-45	180	Multigrade hydraulic fluids for a wide temperature range and severe load conditions. Also suitable for general lubrication of bearings and gearboxes where a high viscosity index and good load carrying capacity is required. Denison HFO approved.
RENOLIN B 22 HVI	22	0.5	866	22	4.9	156	-45	175	
RENOLIN B 32 HVI	32	0.5	871	32	6.3	152	-48	178	
RENOLIN B 46 HVI	46	0.5	879	46	8.1	149	-45	186	
RENOLIN B 68 HVI	68	0.5	868	68	11	153	-33	240	
RENOLIN B 100 HVI	100	0.5	871	100	13.5	140	-24	240	
RENOLIN B 150 HVI	150	0.5	881	150	17.7	130	-24	260	
Low Temperature Hydraulic Oils									
RENOLIN ZAF 15 LT	15	0.5	855	15	5.5	370	-48	120	Multigrade oil for hydraulic systems, bearings and transmissions with excellent low temperature behaviour. Extremely high viscosity index.
RENOLIN ZAF 32 LT	32	0.5	867	32	9	270	-60	170	

	Grade	TAN	Density kg/m <sup>3</sup>	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Gear Oils									
RENOLIN CLP 68	68	0.6	886	68	8.7	99	-24	236	High performance gear oils with outstanding extreme pressure characteristics and load carrying capacity. Recommended for spur, helical and bevel enclosed gears with circulation or splash lubrication. Operating temperatures up to 100°C and peaks above 120°C. RENOLIN CLP oils can be used for all applications where CLP oil according to DIN 51517-3 is recommended. These products meet and exceed all current requirements of gear and bearing manufacturers. CKC/CKD according to ISO12925-1.
RENOLIN CLP 100	100	0.6	890	100	11.2	98	-24	240	
RENOLIN CLP 150	150	0.6	894	150	14.5	94	-24	250	
RENOLIN CLP 220	220	0.6	896	220	18.9	96	-24	260	
RENOLIN CLP 320	320	0.6	900	320	24	95	-14	255	
RENOLIN CLP 460	460	0.6	901	460	30.4	95	-12	270	
RENOLIN CLP 680	680	0.6	918	680	36.8	88	-10	270	
TITAN Supergear 80W-90		1	890	134	14.4	108	-27	220	Mineral universal gear oil for transmission and axle gearboxes for outboard motors. SAE 80W-90 classified.
Transmission Fluid									
TITAN ATF 4000			862	37.8	7.6	174	-50	190	Multipurpose transmission fluid, recommended whenever DEXRON III performance is required.

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Turbine Oils									
RENOLIN Eterna 32	32	0.12	842	32	5.6		-15	220	New generation of turbine oils for gas, steam and expansion turbines as well as turbo chargers.
RENOLIN Eterna 46	46	0.12	846	46	7.6		-15	220	
RENOLIN Eterna 68	68	0.12	851	68	9.9		-15	230	

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Heat Transfer Oils									
ASSISTO Therm 5	32	<0.05	870	30.5	5.3		-12	210	High performance heat transfer fluid for closed heat transfer systems with or without forced circulation. According to DIN 51522.
ASSISTO Therm LT	15	<0.05	840	14	3		-42	185	Heat transfer oil with exceptional low temperature properties.
THERMOCLEAN			1050					>160	Cleaning additive for heat transfer systems.

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Air Compressor Oils									
RENOLIN 503	68	0.1	878	68	8.6	97	-12	248	VDL air compressor oils according to DIN 51506 for piston and rotation compressors. For final compression temperatures up to 220°C. These products are based on special mineral oils.
NAVIGO RC 100	100		885	100	11	94	-9	248	
RENOLIN 504	100	0.1	880	96	10.8	95	-12	255	
RENOLIN 505	150	0.1	888	154	14.4	90	-9	258	

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Refrigeration Oils									
RENISO KM 32	32	0.01	881	32	4.9	63	-45	202	Special naphthenic refrigeration oils compatible with Ammonia NH3 (R717) and CFC/HCFC (R12/R22) refrigerants in open, semi-hermetic and hermetic compressors.
RENISO KS 46	46	0.01	895	46	5.8	47	-42	195	
RENISO KC 68	68	0.01	900	68	7.2	45	-39	200	

## SYNTHETIC OILS, SPECIALITIES AND GREASES

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Gear Oils									
RENOLIN Unisyn CLP 220	220	0.6	852	220	25.7	148	-45	260	Fully synthetic gear oils based on polyalphaolefin for applications where a long-life CLP-HC type according to DIN 51517-3 is required.
RENOLIN Unisyn CLP 320	320	0.6	860	320	35	155	-42	260	

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Air Compressor Oils									
NAVISYN SC 46	46		857	46	7.8	139	-40	245	Synthetic PAO compressor oil for flooded or oil injection screw type air compressors.
RENOLIN Unisyn OL 46	46	0.1	843	46	7.9	146	< -60	260	
NAVISYN SC 68	68		858	68	10.5	142	-40	248	
RENOLIN Unisyn OL 68	68	0.1	845	68	10.6	144	< -60	265	

NAVISYN DE 100	100		961	97	9.3	80	-35	274	A diester based synthetic oil designed for reciprocating compressors and vacuum pumps.
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	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Refrigeration Oils									
RENISO Triton SEZ 32	32	0.03	1007	32	6.1	141	-48	240	Chlorine-free, polyolester-based refrigeration oils compatible with chlorine-free HFC refrigerants such as R134a, R404a and R410c. Depending on the viscosity RENISO Triton can be used for hermetic, semi-hermetic and open piston compressors as well as screw type and turbo compressors. The product has excellent compatibility with elastomers and all materials used in refrigeration circuits.
RENISO Triton SE 55	55	0.03	1009	55	9	143	-51	270	
RENISO Triton SEZ 68	68	0.03	973	65.6	9.5	125	-45	258	
RENISO Triton SEZ 100	100	0.03	965	100	11.8	107	-39	288	
RENISO Triton SE 170	170	0.03	972	173	17.6	111	-24	260	
RENISO Triton SE 220	220	0.01	980	235	20.7	103	-27	285	

RENISO S 68	68	0.01	869	68	6.2		-33	188	Alkylbenzene-based synthetic refrigeration oil compatible with chlorine containing refrigerants (e.g. R22, R502, R401A/B, R402A/B), iso-butane (R600a) and propane (R290). RENISO S 68 can also be used for NH3 (R717).
RENISO SP 100	100	0.01	871	100	7.9		-24	190	

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Gas Compressor Oil									
RENOLIN LPG 185	185	0.6	1012	185	29.1	197	-36	280	High performance gas compressor oil based on polyalkylene glycol. Compatible with hydrocarbon chemical gases (propane, butane, ethylene and mixtures), petroleum gases and natural gases with a high amount of methane as well as other chemical gases (NH3, butadiene). The oil is suitable for piston, screw and vane compressors.

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Stern Tube Oil									
RENOLIN CLP 220 Plus	220	0.7	899	220	18.9	96	-24	260	Emulsifying stern tube oil; provides 95% of load capacity when mixed with 5% water.



	Grade	TAN	Density kg/m <sup>3</sup>	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Environmentally Acceptable Hydraulic Oils (EAL)									
PLANTOSYN 32 HVI	32	0.55	915	32	6.23	148	-46	220	High performance, rapidly biodegradable hydraulic and lubricating oils based on saturated synthetic esters. Fully compliant with ISO15380: HEES and OECD-Guideline 301B. The grade range bears the EU Ecolabel.
PLANTOSYN 46 HVI	46	0.55	913	46	8.2	150	-36	280	
PLANTOSYN 68 HVI	68	0.55	916	68	10.55	143	-27	280	

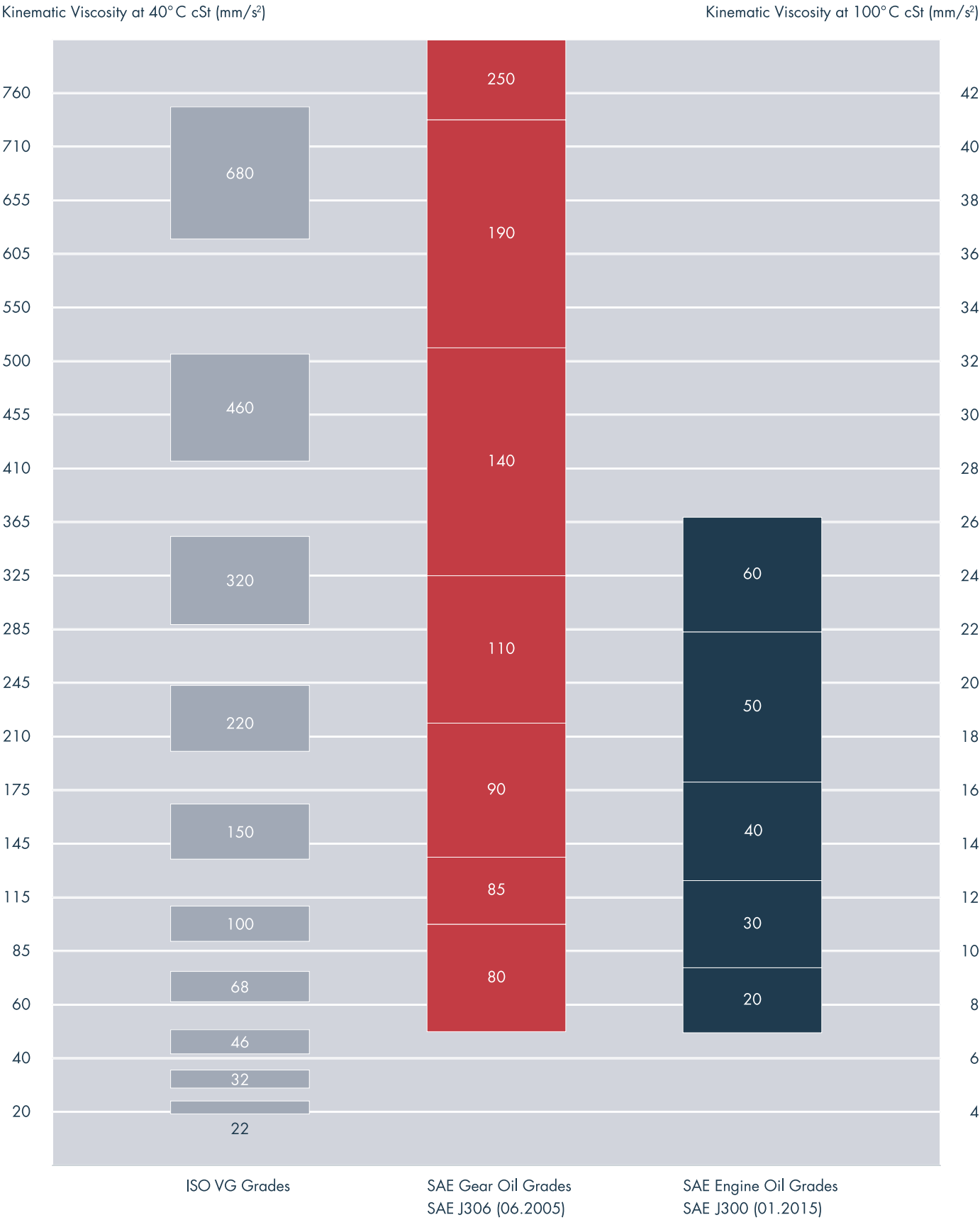
	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Environmentally Acceptable Gear Oils (EAL)									
PLANTOGEAR 100 S	100	1	924	100	15.8	170	-51	280	High performance, rapidly biodegradable synthetic ester-based gear oil. Fully compliant with DIN 51517-3, approved by major gear manufacturers. FZG load stage >12. The grade range bears the EU Ecolabel.
PLANTOGEAR 150 S	150	1	926	150	21	165	-45	280	
PLANTOGEAR 220 S	220	1	938	220	27.4	160	-48	280	
PLANTOGEAR 320 S	320	0.7	943	320	35.1	155	-30	280	

	NLGI Grade	Dropping Point	Temperature Range	Base Oil Viscosity	Color	Thickener	Application
		°C	°C	cSt at 40°C			
Greases							
NAVIGREASE CSX 2	2	>280	-20 to +160	200	brown	Ca sulphonate complex	Multipurpose grease for all points requiring a high performance concerning water resistance, working stability, EP and AW properties.
NAVIGREASE EP 2	2	>195	-20 to +120	200	brown	lithium	For plain and roller bearings under high load in humid atmosphere.
RENOLIT FLM 2	2	>180	-30 to +140	100	black	lithium with MoS <sub>2</sub>	For plain and roller bearings with extended re-greasing intervals.
RENOLIT LX-PEP 2/3	2/3	>250	-30 to +150	170	green	lithium complex	For plain and roller bearings under high load in humid atmosphere.
RENOLIT EP X1	1	>170	-15 to +120	1050	black	lithium with MoS <sub>2</sub>	Coupling grease with outstanding performance at high rotation speeds due to exeptional base oil viscosity.
RENOLIT LZR 000	00/000	>160	-40 to +110	43	green	lithium calcium	Free-flow adhesive grease for centralized lubrication systems.

<b>Environmentally Acceptable Greases (EAL)</b>							
NAVIGREASE BIO 2	2	>200	-30 to +120	345	brown	lithium	Environmentally acceptable extreme pressure greases based on biodegradable synthetic esters. Suitable for a wide range of deck and engine applications such as plain and roller bearings as well as central lubricating systems, ropes and open gears, compliant with latest US regulations.
NAVIGREASE BIO 0	0	194	-40 to +80	320	brown	lithium	

	Grade	TAN	Density kg/m³	Kinematic Viscosity		VI	Pour Point	Flash Point	Application
	ISO VG	mgKOH/g	15°C	cSt at 40°C	cSt at 100°C		°C	COC in °C	
Corrosion Protection									
ANTICORIT DFW 8301			811					>65	Barium-free corrosion preventive and dewatering fluid which forms a thin, waxy film. It is used universally for corrosion protection of metal parts, spare parts, tools, etc.

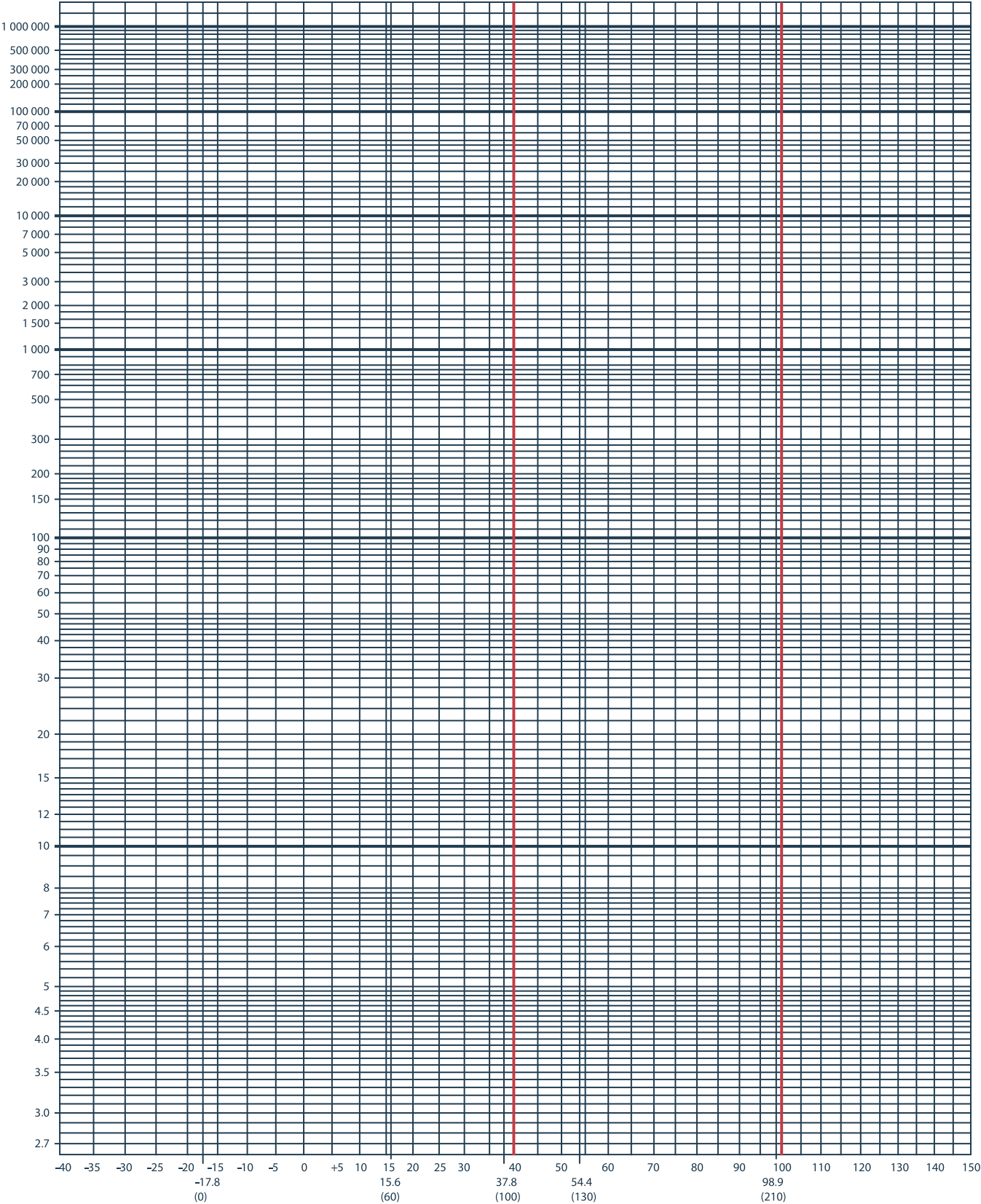
VISCOSITY CLASSIFICATION



**Note** The kinematic viscosity at 40°C and 100°C are related horizontally for 95 VI Oils. The SAE specifications are at 100°C only and Multigrade Oil viscosities are not representative at other temperatures.

# VISCOSITY-TEMPERATURE DIAGRAM

Kinematic Viscosity mm<sup>2</sup>/s (cSt)



Temperature °C (F)

[www.lukoilmarine.com](http://www.lukoilmarine.com)

**MARINE IN ALL WE DO!**