



**OUR PRODUCTS**

## Main engine oils

Lubricants	SAE	BN	Density <sup>(1) (2)</sup>		Viscosity <sup>(1)</sup>	Pour	Flash	Application
	or ISO	mg KOH/g	kg/m <sup>3</sup> 15°C	20°C	mm <sup>2</sup> /s 100°C	Point <sup>(1)</sup> (°C)	Point <sup>(1)</sup> COC (°C)	
Cylinder oils	Methods	ASTM D 2896	ISO 3675		ISO 3104	ISO 3016	ISO 2592 (or ASTM D 92)	
<b>Talusia Universal 100</b>	50	100	950	947	19	-6	> 230	Cylinder oil for slow-speed engines allowing for the most stringent and corrosive conditions encountered in service.
<b>Talusia HR 70</b>	50	70	940	937	20	-9	> 230	Cylinder oil for slow-speed engines running on high sulfur fuel oil.
<b>Talusia Universal</b>	50	57	930	927	19	-9	> 230	Cylinder oil for slow-speed engines running on both high and low sulfur fuel oils.
<b>Talusia LS 40</b>	50	40	920	917	20	-9	> 230	Cylinder oil for slow-speed engines running on low sulfur fuel oil.
<b>Talusia LS 25</b>	50	25	908	905	19	-10	> 230	Cylinder oil for slow-speed 2-stroke engines running on ECA fuels below 0.1%
System oils								
<b>Atlanta Marine D 2005</b>	20	6	890	887	8.8	-6	> 220	Special system oil to be used to top up when the viscosity of the system oil in service is too high.
<b>Atlanta Marine D 3005</b>	30	6	890	887	11.5	-9	> 220	System oil for slow-speed engines.
<b>Atlanta Marine D 4005</b>	40	6	890	887	14.7	-9	> 230	
Trunk piston engine oils								
<b>Aurelia TI 4020</b>	40	20	910	907	14	-12	> 230	Oil for medium-speed diesel engines running on low sulfur heavy fuel oil or for Dual Fuel engines.
<b>Aurelia TI 3030</b>	30	30	910	907	12	-12	> 230	Oils for medium-speed diesel engines running on high sulfur heavy fuel oil.
<b>Aurelia TI 4030</b>	40	30	910	907	14	-12	> 230	
<b>Aurelia TI 3040</b>	30	40	910	907	12	-9	> 230	
<b>Aurelia TI 4040</b>	40	40	910	907	14	-9	> 230	
<b>Aurelia TI 4055</b>	40	55	920	917	14	-9	> 230	Oil for medium-speed diesel engines running on high sulfur heavy fuel oil and with a low lubricating oil consumption.
<b>Aurelia LNG</b>	40	4.6	874	871	13.8	-9	> 280	Oil for 4 stroke natural gas engines in hard conditions.
<b>Disola M 3012</b>	30	12	900	897	12	-9	> 220	Oils for high and medium-speed diesel engines running on distillate fuel oil (ISO 8217 type DMX). Meet API CF specification.
<b>Disola M 4012</b>	40	12	900	897	14.2	-9	> 230	
<b>Disola M 3015</b>	30	14	900	897	12	-9	> 220	Oils for high and medium-speed diesel engines running on distillate fuel oil or MDO (ISO 8217 type DMX, DMA and DMZ). Meet API CF specification.
<b>Disola M 4015</b>	40	14	900	897	14.2	-9	> 230	

## Auxiliary mineral lubricants

Lubricants	SAE	BN	Density <sup>(1) (2)</sup>		Viscosity <sup>(1)</sup>	Pour	Flash	Application
	or ISO	mg KOH/g	kg/m <sup>3</sup> 15°C	20°C	mm <sup>2</sup> /s 100°C	Point <sup>(1)</sup> (°C)	Point <sup>(1)</sup> COC (°C)	
Engine oils	Methods	ASTM D 2896	ISO 3675		ISO 3104	ISO 3016	ISO 2592 (or ASTM D 92)	
<b>Disola W</b>	15W40	11	888	885	13.4	-30	> 220	Oil for high-speed diesel engines. Meet API CI-4 and Caterpillar ECF-2 specifications.
<b>Disola DD 40</b>	40	>7.5	896	893	14.3	-15	> 230	Oil for lubrication of 2 stroke Detroit Diesel engines. Meet API CF specification.
<b>Disola MT 40</b>	40	11	898	895	14.3	-18	> 230	Oil for high-speed diesel engines. Meet API CG-4 and MTU 2 specifications.
<b>Disal CF 113 F</b>	40	13	905	902	15.3	-9	> 220	Zinc and chlorine free engine oil suitable for the lubrication of EMD engines.



## Auxiliary mineral lubricants

Lubricants	SAE or ISO	Density <sup>(1)(2)</sup> kg/m <sup>3</sup>		Viscosity <sup>(1)</sup> mm <sup>2</sup> /s	Pour Point <sup>(1)</sup> (°C)	Flash Point <sup>(1)</sup> COC (°C)	Application
		15°C	20°C	40°C			
<b>Hydraulic oils</b>							
Methods		ISO 3675		ISO 3104	ISO 3016	ISO 2592 (or ASTM D 92)	
Visga 15	15	855	852	15.8	-42	>150	High VI hydraulic oils. Meet ISO 6743-4 and DIN 51524-3 HVLP specifications.
Visga 22	22	864	861	23	-42	>150	
Visga 32	32	870	867	34	-33	>150	
Visga 46	46	876	873	48	-30	>150	
Visga 68	68	882	879	71	-27	>150	
Visga 100	100	886	883	105	-24	>150	
Visga 150	150	890	887	157	-21	>150	
<b>Gear oils</b>							
Epona Z 68	68	881	878	68.1	-24	> 230	Extreme-pressure sulphophosphorous gear oils. Meet ISO 6743-6 (CKD), DIN 51517 Part 3 (CLP) specifications.
Epona Z 100	100	884	881	107	-21	> 230	
Epona Z 150	150	892	889	153.4	-27	> 220	
Epona Z 220	220	893	890	216.9	-21	> 270	
Epona Z 320	320	901	898	319.1	-15	> 260	
Epona Z 460	460	903	900	452.2	-12	> 250	
<b>Compressor oils</b>							
Dacnis 68	68	885	882	68	-21	> 240	Oils for reciprocating air compressors. Meet DIN 51506 VD-L and ISO 6743-3 (DAG & DAB) specifications.
Dacnis 100	100	889	886	100	-6	> 270	
Dacnis 150	150	892	889	150	-6	> 280	
<b>Refrigerating oils</b>							
Lunaria FR 32	32	906	903	30	-40	> 165	Oils for refrigerating compressors, using CFC refrigerant gas. Meet ISO 6743-L specifications.
Lunaria FR 46	46	910	907	46	-35	> 170	
Lunaria FR 68	68	890	887	68	-34	> 175	
<b>Turbine oils</b>							
Preslia 32	32	856	853	32	-12	> 215	Oils for turbochargers.
Preslia 46	46	884	881	46	-9	> 230	
Preslia 68	68	887	884	68	-9	> 240	
Preslia 100	100	890	887	100	-9	> 250	
<b>Heat transfer oils</b>							
Seriola ETA 32	32	870	867	32	-15	> 220	Oil for heat transfer.

## Auxiliary synthetic lubricants

Lubricants	SAE or ISO	Density <sup>(1) (2)</sup> kg/m <sup>3</sup>		Viscosity <sup>(1)</sup> mm <sup>2</sup> /s	Pour Point <sup>(1)</sup> (°C)	Flash Point <sup>(1)</sup> COC (°C)	Application
	Methods	15°C	20°C	40°C	ISO 3104	ISO 3016	
<b>Gear oils</b>							
<b>Epona SA 220</b>	220	857	854	220.1	-45	> 250	Gear oils (PAO type). Meet ISO 6743-6 (CKD), DIN 51517 Part 3 (CLP) specifications.
<b>Epona SA 320</b>	320	860	857	313.8	-42	> 260	
<b>Compressor oils</b>							
<b>Barelf CH 68</b>	68	962	959	68	-36	> 260	Oils (ester type) for turbochargers and reciprocating air compressors.
<b>Barelf CH 100</b>	100	960	957	110	-30	> 260	
<b>Barelf SM 46</b>	46	841	839	46	-42	> 250	Oils (PAO type) for turbochargers and rotary air compressors.
<b>Barelf SM 68</b>	68	845	842	68	-42	> 260	
<b>Refrigerating oils</b>							
<b>Barelf AL 100</b>	100	870	867	104	-33	> 200	Oils (alkylbenzene type) for air compressors and refrigerating compressors using CFC and HCFC refrigerant gas (R22 etc.).
<b>Barelf AL 150</b>	150	870	867	150	-30	> 210	
<b>Planetelf ACD 32</b>	32	984	981	34.6	-54	> 250	Oil (polyolester type) for refrigerating compressors using HFC refrigerant gas (R134a etc.).
<b>Planetelf ACD 68</b>	68	962	959	69.5	-39	> 250	
<b>Planetelf ACD 100 FY</b>	100	960	957	101	-36	> 260	
<b>Gas compressor oils</b>							
<b>Primeria LPG 150</b>	150	1050	1047	141	-45	> 220	Oil (polyglycol type) for LPG, LNG and chemical gas compressors.

## Greases

Greases	NLGI grade	Thickener	Temperature range (°C)	Drop Point (°C)	Worked penetration at 25°C		Application
	Methods				ASTM D 217	IP 396	
<b>Ceran AD Plus</b>	0 - 1	Calcium Sulfonate Complex	-25 to 150	> 250	330 - 360		Water resistant EP grease for wire ropes, open gears.
<b>Ceran XM 100</b>	1 - 2	Calcium Sulfonate Complex	-30 to 180	> 300	280 - 310		Water resistant, high temperature multipurpose EP greases.
<b>Ceran XM 220</b>	1 - 2	Calcium Sulfonate Complex	-30 to 180	> 300	280 - 310		
<b>Multis EP 0</b>	0	Lithium / Calcium	-25 to 120	> 170	355 - 385		Multipurpose EP greases.
<b>Multis EP 1</b>	1	Lithium / Calcium	-25 to 120	> 190	310 - 340		
<b>Multis EP 2</b>	2	Lithium / Calcium	-25 to 120	> 185	265 - 295		Multipurpose EP grease with MoS <sub>2</sub> .
<b>Multis MS 2</b>	2	Lithium / Calcium	-25 to 130	> 185	265 - 295		

## On-board analysis

Tech'care analysis kit		Complete onboard laboratory for real-time proactive monitoring		
Levels of analysis	STANDARD	PRO 2	TOTAL CYLINDER CARE	
Iron content			✓	
Water content	✓	✓		
Seawater detection	✓	✓		
Viscosity	✓	✓		
Insolubles		✓		
Base Number (BN)		✓		

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## Environmentally acceptable lubricants (EAL) <sup>(3)</sup>

Lubricants	SAE or ISO	Density <sup>(1)</sup> <sup>(2)</sup> kg/m <sup>3</sup>		Viscosity <sup>(1)</sup> mm <sup>2</sup> /s	Pour Point <sup>(1)</sup> (°C)	Flash Point <sup>(1)</sup> COC (°C)	Application
	Methods	15°C	20°C	40°C	ISO 3016	ISO 2592 (or ASTM D 92)	
<b>Hydraulic oils</b>							
	Methods	ISO 3675		ISO 3104	ISO 3016	ISO 2592 (or ASTM D 92)	
<b>Biohydran TMP 32</b>	32	913	910	32	-39	> 260	EAL-compliant gear and bearing oil.
<b>Biohydran TMP 46</b>	46	920	917	46	-39	> 280	
<b>Biohydran TMP 68</b>	68	935	932	68	-42	> 300	
<b>Biohydran TMP 100</b>	100	937	934	100	-42	> 300	
<b>Gear oils</b>							
<b>Carter Bio 68</b>	68	951	948	68	-42	> 240	EAL-compliant gear and bearing oil.
<b>Carter Bio 100</b>	100	968	965	100	-42	> 240	
<b>Carter Bio 150</b>	150	960	957	150	-30	> 240	
<b>Carter Bio 220</b>	220	960	957	220	-27	> 240	
<b>Carter Bio 320</b>	320	964	961	320	-24	> 250	
<b>Stern tube oils</b>							
<b>Bioneptan HT 100</b>	100	920	917	100	-30	> 250	EAL-compliant stern tube oil.
<b>Bioneptan 100</b>	100	939	936	100	-40	> 250	
<b>Bioneptan 150</b>	150	959	956	150	-32	> 250	
<b>Bioneptan 220</b>	220	961	958	220	-28	> 250	



## Environmentally acceptable greases (EAL) <sup>(3)</sup>

Greases	NLGI grade	Thickener	Temperature range (°C)	Drop Point (°C)	Worked penetration at 25°C	Application
	Methods	ASTM 217		IP 396	ASTM D 217	
<b>Bio Adhesive Plus</b>	1	Calcium	-20 to 90	> 145	310 - 340	EAL-compliant grease for metal cables, wire ropes and winches.
<b>Biomultis EP 2</b>	2	Lithium	-30 to 140	> 180	263	EAL-compliant extreme-pressure (EP) grease designed for applications in environmentally sensitive conditions.

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(1) Typical values

(2) The reference density for volume conversion for invoicing purposes is 15°C for BULK DELIVERIES and 20°C for ALL PACKAGE DELIVERIES.

(3) Environmentally Acceptable Lubricant (EAL) according to the definitions and requirements of the U.S. Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP).

## Comments

### Viscosity

Viscosity is the property of a liquid to build up a resistance against the mutual shifting of two neighboring layers (internal friction).

$$\text{Dynamic viscosity} = \frac{\text{shearing stress}}{\text{shear rate}}$$

[Dimension: Pascal second = Pa.s]

$$\text{Kinematic viscosity} = \frac{\text{dynamic viscosity}}{\text{density}}$$

[Dimension:  $\text{m}^2/\text{s} = 10^6 \text{mm}^2/\text{s}$   
 $(1 \text{mm}^2/\text{s} = 10^{-6} \text{m}^2/\text{s} = 1 \text{cSt})$

Under gravity conditions, kinematic viscosity is the ratio of dynamic viscosity and density.

### SAE viscosity classes

Viscosity classes were originally introduced by the SAE (Society of Automotive Engineers) in the United States of America. In the meantime, they have been accepted by and introduced in most of the countries in the world for classifying engine and automotive transmission oil. It is the intention of this classification to refer only to the oil's different degree of viscosity and to avoid any reference as to its quality, field of application and additives.

SAE viscosity classes for engine oils according to J300 2015			
SAE viscosity class	Maximum apparent viscosity in mPa.s at a temperature of (°C)	Maximum pump temperature of (°C)	Kin. viscosity at 100°C (mm <sup>2</sup> /s) min./max.
0W	6200 at -35	-40	3.8 –
5W	6600 at -30	-35	3.8 –
10W	7000 at -25	-30	4.1 –
15W	7000 at -20	-25	5.6 –
20W	9500 at -15	-20	5.6 –
25W	13.000 at -10	-15	9.3 –
20			5.6 to <9.3
30			9.3 to <12.5
40			12.5 to <16.3
50			16.3 to <21.9
60			21.9 to <26.1

### Multigrade Oil

A multigrade oil is a lubricant the viscosity of which falls into one of the "W" classes, and into a viscosity class not classified as "W" at a temperature of 100°C.

### ISO viscosity classes

The ISO VG values refer to the kinematic viscosity values at a test temperature of 40°C. The conversion of kinematic viscosity into dynamic viscosity is based on the average density values of different lubricating oils. Each viscosity class is designated by the integer achieved by rounding the numeric value of the average viscosity at 40°C that is expressed in mm<sup>2</sup>/s.

ISO viscosity class	Average viscosity at 40°C in mm <sup>2</sup> /s (cSt)	Limits of kinematic viscosity at 40°C in mm <sup>2</sup> /s (cSt)	
		Minimum	Maximum
ISO VG 2	2.2	1.98	2.42
ISO VG 3	3.2	2.88	3.52
ISO VG 5	4.6	4.14	5.06
ISO VG 7	6.8	6.12	7.48
ISO VG 10	10	9.00	11.0
ISO VG 15	15	13.5	16.5
ISO VG 22	22	19.8	24.2
ISO VG 32	32	28.8	35.2
ISO VG 46	46	41.4	50.6
ISO VG 68	68	61.2	74.8
ISO VG 100	100	90	110
ISO VG 150	150	135	165
ISO VG 220	220	198	242
ISO VG 320	320	288	352
ISO VG 460	460	414	506
ISO VG 680	680	612	748
ISO VG 1000	1000	900	1100
ISO VG 1500	1500	1350	1650

## Conversion tables

VOLUME						
To obtain	Imp. Gallon	Barrel (GB)	US Gallon	US Barrel	Liters	Cubic Meters
Imp. Gallon	1	0.02778	1.20094	0.028594	4.546	0.004546
Barrel (GB)	36	1	43.235	1.0295	163.656	0.163656
US Gallon	0.83268	0.02313	1	0.2381	3.7853	0.0037853
US Barrel	34.9726	0.9715	42	1	158.984	0.158984
Liters	0.219974	0.006104	0.26418	0.00629	1	0.001
Cubic Meters	219.974	6.1104	264.18	6.29	1000	1

WEIGHT					
To obtain	Kilograms	Pounds	Metric Tons	Long Tons	Short Tons
Kilograms	1	2.2046	0.001	0.0009842	0.001102
Pounds	0.45359	1	0.00045359	0.0004643	0.0005
Metric Tons	1000	2204.6	1	0.98421	1.1023
Long Tons	1016.0	2240.0	1.016	1	1.120
Short Tons	907.18	2000	0.90718	0.89286	1

TEMPERATURE	
$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5 / 9$	$^{\circ}\text{F} = (^{\circ}\text{C} \times 9 / 5) + 32$

**BN:** Base Number, expressed in mg KOH/g\*, is the full basicity reserve of a lubricating oil measured according to the ASTM D 2896 method. The Base Number does not give sufficient indication on the ability to neutralize the acids resulting from the combustion of the fuel oils.

**Density:** Density is the quotient of mass by volume, usually expressed at 15°C. Density of mineral oils varies with the temperature according to the formula  $d_t = d_{15} - 0,65 (t-15)$  (with t in °C).

**Pour point:** Is the lowest temperature at which oil can still flow without plugging.

**Flash point:** The flash point indicates the minimum temperature at which the vapor from a heated lubricant will ignite when exposed to an external ignition source.

**Dropping point (for grease):** Is the temperature at which a drop of oil released by the grease falls from the orifice of a test cup under prescribed test conditions.

**Worked penetration (for grease):** The term refers to the cone penetration\*\* to be established immediately after subjecting the grease sample to 60 double cycles per minute in the grease kneading machine. The grease must be heated to a temperature of 25°C before the working.

\* mg KOH/g: milligrams of potassium hydroxide per gram of oil.

\*\* Penetration of a cone with a weight of 102.5g into a sample – measured in tenths millimeters.

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