

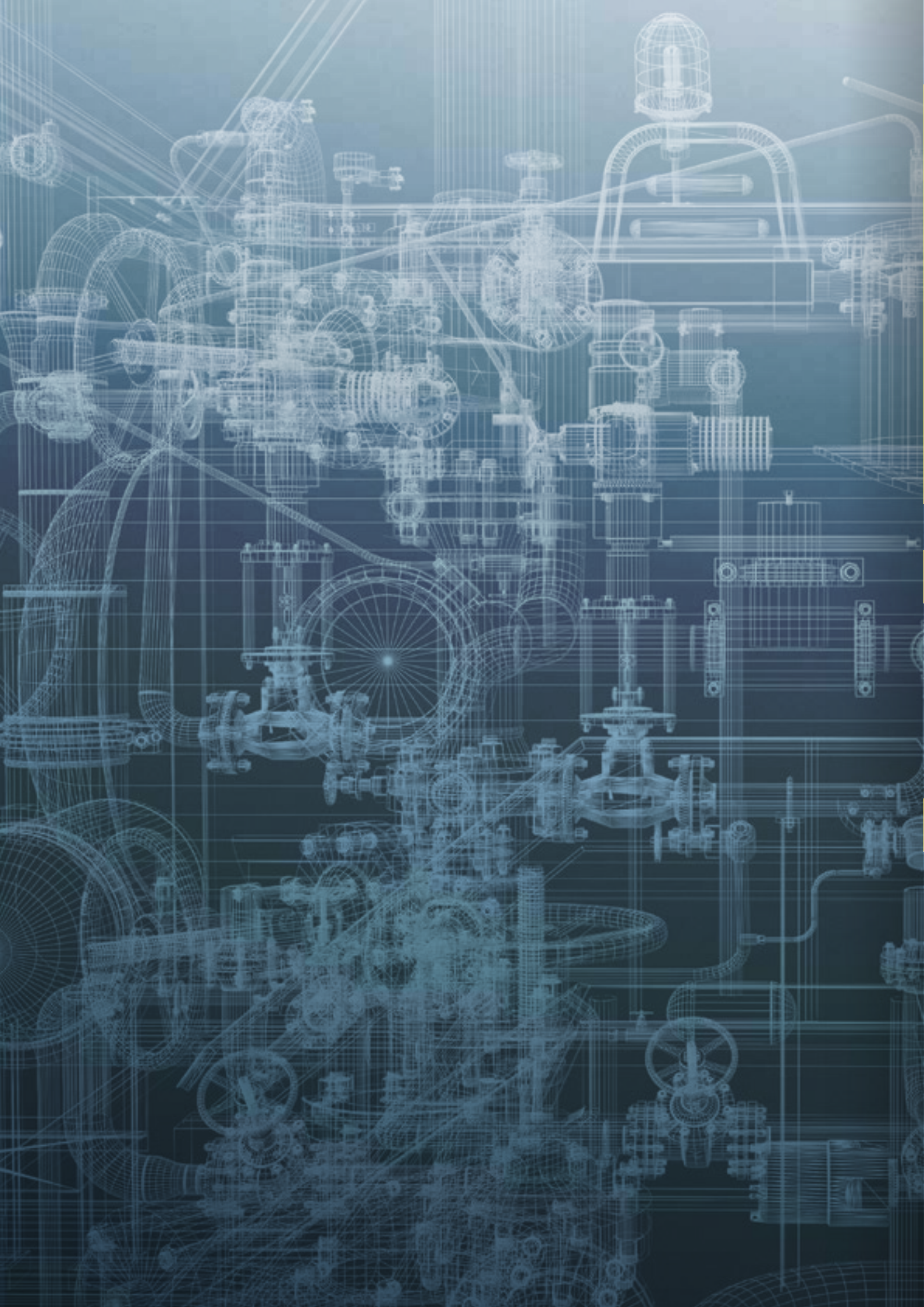


Eni lubricants for industry



eni

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Eni is a major integrated energy company committed to growth in the activities of finding, producing, transporting, transforming and marketing oil and gas.

Eni is an integrated company that operates across the entire energy chain, employing more than 33,000 people in 69 Countries around the world. Our way of doing business, based on operating excellence, focus on health, safety and the environment, is committed to preventing and mitigating operational risks.

Eni Refining & Marketing has always been committed to researching and producing ultra-high performance lubricants and operates in the industrial market in Italy, Europe and various other Countries.

The Eni lubricant lines for industry are able to meet all the lubrication needs of industrial plants of any type with a quality level to the top of the market.

Eni Refining & Marketing maintains and reinforces its technical and commercial leadership status in the fields of technology, quality, environmental protection and technical support for its customers.

Research centre

The Eni Research Centre in San Donato Milanese has state-of-the-art laboratories featuring advanced equipment for studying, developing and fully identifying the characteristics of raw materials for high performance lubricants. In line with the company's marketing strategies, the Eni research involves performing important technical activities in collaboration with important machinery manufacturers, regulatory authorities and several prestigious Italian universities. The Eni Research Centre complies with the UNI EN ISO 9001 standard in relation to the activities of "Applied research, technical support and laboratory analyses in the energy sector: lubricants, additives, bitumens, special products for motor vehicles and for industrial use" and "Production on pilot systems of lubricants, propellants and fuels" (sector EA 34,35 - certificate no. 676).



Our commitment to ensure customer satisfaction

The Eni Refining & Marketing organization is able to support customers for any need regarding lubrication oils and to consolidate a confidential relationship based on integrated technical support services.

Sales assistance

The Eni sales network, present on the territory, provides information on the range of lubricating oils and assists customers in all the product procurement phases.

Technical assistance

Eni technicians are available to help solving any operative issue and can provide their assistance to arrange lubrication guides, to follow the oil charge monitoring and to offer training courses regarding lubrication.

Laboratory assistance

The Eni laboratories give their full assistance to customers for the oil charge control by periodic monitoring in order to guarantee the best operating efficiency of lubricated machineries.

For more information oilproducts.eni.com



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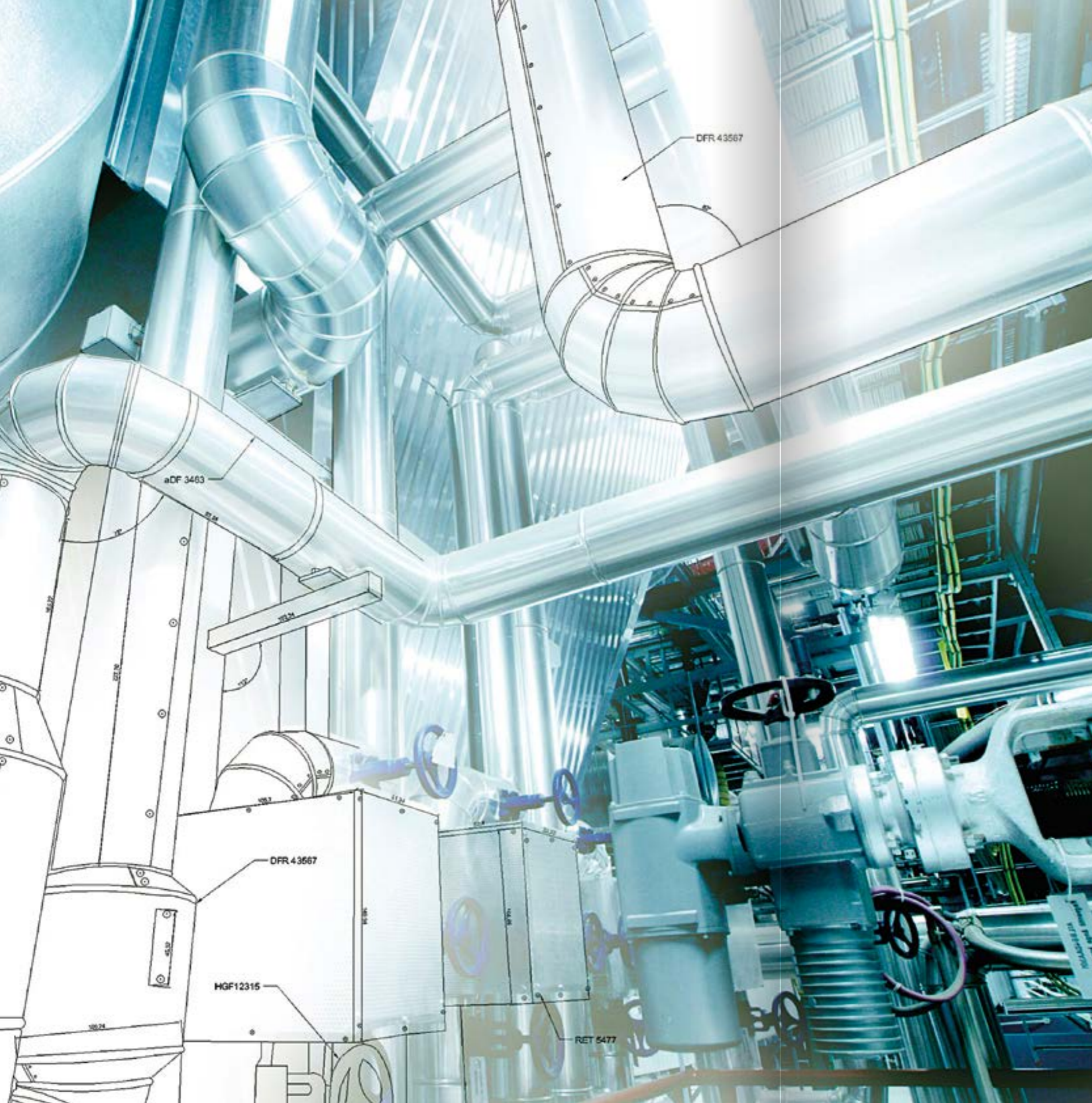
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Hydraulic oils

Hydraulic systems (or circuits) consist in a set of components filled with a fluid that is responsible for energy transmission with great flexibility and under controlled conditions. Hydraulic oils in this system must have technical characteristics and performance suitable for every kind of machinery and operative conditions, in order to ensure good operation of the systems and provide relevant protection of all lubricated components to extend their service life.



Eni, according to technological standards, produces modern and advanced mineral or synthetic lubricants suitable for any kind of hydraulic systems.



Synthetic oils are specifically required where a greater environmental protection (biodegradability) or a greater protection from fire hazard (fire resistant) is required.



Eni has recently introduced a new range of products specifically developed for food industry, FDA and NSF certified.

Hydraulic oils




Mineral oils



Product	Description	Viscosity ISO VG	Classifications and specifications
OSO	Characteristics: oils with excellent antiwear, antirust and antioxidant properties. High filterability in service. Applications: hydraulic systems operating under high hydrostatic pressures and subjected to low temperatures variations.	15 to 150	ISO 11158-HM AFNOR NF E 48603 HM BS 4231 HSD DIN 51524-2 HLP Parker Hannifin - Denison HF-0 Fives Cincinnati P-68, P-69, P-70 level Linde Rexroth RD 90220-01/12.10
OSO S	Characteristics: oils that prevent deposits formation due to ashless additives (zinc free). Very high filterability and oxidation stability. Applications: hydraulic systems particularly sensitive to deposits formation.	32 to 100	ISO 11158-HM AFNOR NF E 48603 HM BS 4231 HSD DIN 51524-2 HLP Parker Hannifin - Denison HF-0 level Fives Cincinnati P-68, P-69, P-70 level Eaton Vickers M-2950-S level Eaton Vickers I-286-S level
OSO D	Characteristics: detergent/dispersant oils, able to hold deposit formation and to emulsify water accidentally infiltrated. Applications: hydraulics systems particularly sensitive to risks of pollution from water and impurities.	32, 46, 68	ISO 11158-HM DIN 51524 HLP-D MAN-N 698
OSO PM	Characteristics: oil that prevents deposits formation due to ashless additives (zinc free). Outstanding antiwear and antioxidant properties. Very good filterability in service and excellent demulsibility. Applications: Müller Weingarten presses for steel sheet stamping and shearing.	46	ISO 11158-HM DIN 51524-2 HLP AFNOR NF E 48603 HM BS 4231 HSD Eaton Vickers M-2950-S level Eaton Vickers I-286-S level Müller Weingarten DTS 55005/7
Arnica	Characteristics: high viscosity index oils with excellent antioxidant, antiwear and antirust properties. High filterability in service. Applications: hydraulic systems operating under high pressure conditions and in a wide temperature range.	15 to 100	ISO 11158-HV AFNOR NF E 48603 HV BS 4231 HSE DIN 51524-3 HVLP Fives Cincinnati P-68, P-69, P-70 Commercial Hydraulics Parker Hannifin - Denison HF-0 Eaton Vickers M-2950-S Eaton Vickers I-286-S Linde Rexroth RD 90220-01/12.10
Arnica DV	Characteristics: detergent/dispersant oils able to hold impurities in suspension and to emulsify accidental infiltrations of water. High viscosity index. Applications: ceramic industry presses and hydraulic systems particularly sensitive to risks of pollution from water and impurities.	46	ISO 11158-HV (not demulsive) DIN 51524-3 HVLP-D
Arnica TP	Characteristics: dispersant/demulsive oil with ashless addition (zinc free) able to hold impurities in suspension and to separate easily water from oil. High filterability in service. Applications: ceramic industry presses.	46	ISO 11158-HM DIN 51524-2 HLP
Acer	Characteristics: oils with antioxidant and antirust properties. Applications: hydrodynamic systems where antiwear properties are not required.	15 to 150	ISO 11158-HL AFNOR NF E 48600 HL BS 4231 HSC DIN 51524-1 HL
Radula	Characteristics: mineral oils. Applications: circulation systems operating under not severe conditions. Recommended for systems that require lubricants free of additives.	32, 46	ISO 11158-HH BS 4231 HSB

Product	Description	Viscosity ISO VG	Classifications and specifications
Exidia HG	Characteristics: oils with antistick/slip, antiwear and antirust properties. Applications: slideways of machine tools.	32, 68, 220	ISO 11158-HG ISO-L-GA ISO-L-GB ISO-L-CKE Stanimuc GA and GB DIN 51502 CGLP
Exidia EP	Characteristics: oils with antistick/slip and antirust properties. Outstanding antiwear properties (FZG>12 stage). Applications: slideways of machine tools that require oils with extreme pressure properties.	68	ISO 11158-HG ISO-L-GA ISO-L-GB Stanimuc GA and GB

Synthetic oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Arnica S	Characteristics: biodegradable oils based on organic esters. Very high viscosity index and high flash point. Applications: hydraulic systems exposed to fire hazard owing to the presence of very high temperature materials or other ignition sources. Hydraulic systems of industrial vehicles (earth-moving-machinery or farm-machinery) operating in environmentally sensitive areas.	46, 68	ISO 12922-HFDU ISO 15380-HEES Inline Hydraulik Rexroth RD 90221-01/12.10 Schaeff VII Report of Luxembourg - HFDU
Arnica S FR	Characteristics: biodegradable oils based on organic esters. Very high viscosity index and high flash point. Excellent combustion resistance and self-extinguish property (spray flammability test). Applications: hydraulic systems exposed to fire hazard owing to the presence of very high temperature materials or other ignition sources. Hydraulic systems of industrial vehicles (earth-moving-machinery or farm-machinery) operating in environmentally sensitive areas.	46, 68	ISO 12922-HFDU ISO 15380-HEES FM Approvals Class 6930 VII Report of Luxembourg - HFDU 
Arnica PSX	Characteristics: detergent and dispersant oil with excellent antiwear, antirust and antioxidant properties. High viscosity index. Applications: ceramic industry presses and hydraulic systems where long oil drain intervals are required.	46	ISO 11158-HV DIN 51524-3 HVLP-D
Arnica 104/FR	Characteristics: biodegradable and non-flammable oil based on propylene glycol and water with good anticorrosion properties. Product "not harmful". Exhausted product can be wasted as special product. Applications: hydraulic systems operating at low temperatures (<50°C), but exposed to fire hazard owing to the presence of ignition sources.	n.d.	ISO 12922-HFC ISO 15380-HEPG VII Report of Luxembourg - HFDU Daniell Standard 0.000.001 rev.15

Ecolabel oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Arnica ESB	Characteristics: "eco-friendly" high performance hydraulic fluids based on saturated synthetic esters, readily biodegradable and not bio-accumulative. Excellent oxidation resistance and renewable contents > 80%. Applications: hydraulic systems operating in wide temperature range and in environmentally sensitive areas. Ecolabel registered.	32, 46	ISO 15380-HEES Eaton Vickers 35VQ25A EU Ecolabel registered: -DE/027/141 (ISO VG 32) -DE/027/142 (ISO VG 46) 
Acer EST	Characteristics: "eco-friendly" high performance hydraulic fluid based on synthetic esters, readily biodegradable and not bio-accumulative. Applications: sliding rolling bearings of stern tubes, notably if operating in environmentally sensitive areas. Ecolabel registered.	100	ISO 15380-HEES EU Ecolabel registered: -BE/27/002 

Hydraulic oils

Food grade oils



Product	Description	Viscosity ISO VG	Classifications and specifications
Eni	Characteristics: pharmaceutical white oils with antiwear, anticorrosion and antioxidant additives. Applications: hydraulic systems, plain or rolling bearings and conveyor belts. Pneumatic systems and small gearboxes.	15 to 100	NSF H1 Halal Kosher ISO 6743/4 HV DIN 51524-3 HVLP
SX	Characteristics: synthetic oils with antiwear, anticorrosion and antioxidant additives. Applications: hydraulic systems, plain or rolling bearings, conveyor belts operating at low or high temperatures, small pneumatic systems and gearboxes.	32 to 100	NSF H1 Halal Kosher ISO 6743/4 HV DIN 51524-3 HVLP

Other hydraulic oils

Product	Description	Viscosity ISO VG
H Lift	Characteristics: high viscosity mineral oils with antirust, antiwear and antioxidant properties. Applications: hydraulic systems of elevators.	46, 68
Arnica A	Characteristics: very high viscosity index and very low pour point mineral oil. Good antioxidant and antirust properties. Applications: gate and door opening systems.	15
Arnica ABX	Characteristics: biodegradable fully synthetic (PAO/esters) hydraulic oil with very high viscosity index and very low pour point. Excellent antioxidant and antiwear properties. Applications: gate and door opening systems.	15
Arnica SA	Characteristics: mineral and synthetic oils with high viscosity index and very low pour point. Excellent antistick/slip and antiwear properties. Applications: shock absorbers of vehicles.	12*, 19*, 32
Arnica V	Characteristics: biodegradable oils based on natural esters. High viscosity index. Excellent antirust and anticorrosion properties. Applications: hydraulic systems of machineries operating in environmentally sensitive areas.	32, 46, 68

* viscosity class not regulated by ISO 3448

Turbine oils



Turbines are defined as rotating prime movers, where the energy of a fluid is transformed into mechanical energy, generally intended for production of electricity or propulsion. Steam, hot gases produced directly from burning fuel and water are the commonly used fluids. Turbine oil must lubricate the shaft bearings, remove heat, operate the servomechanisms of regulating valves and lubricate the gear reduction units, if present.

Eni product line satisfies the needs of lubrication of all types of gas, steam and hydraulic turbines, also in combined cycle plants. The partnership with top class manufacturers made it possible to improve formulations over the years, guaranteeing higher levels of performance. Nowadays OTE and OTE GT are a quality reference in a market oriented to very high levels of applied technology.

Product	Description	Viscosity ISO VG	Classifications and specifications
OTE	Characteristics: oils with high resistance to oxidation and corrosion. Excellent demulsibility and antifoam properties. Applications: all parts (bearings, control systems, etc.) of steam, water and gas turbines operating in normal conditions.	32, 46, 68, 80*, 100	ISO 8068 -TSA/TGA/THA DIN 51515-1 TD ASTM D 4304 Type I BS 489:1999 CEI 10-8 (1994) General Electric GEK 28143B Alstom HTDG 90117 V0001 X Ansaldo Energia 606W807 Rev.C (2012) Doosan Skoda Power Siemens TLV 9013 04 Nuovo Pignone SOS 02111/4 Nuovo Pignone SOM 17366
OTE GT	Characteristics: oils with excellent resistance to oxidation and outstanding antiwear property (FZG> 12° stage for ISO VG 46). Applications: gas and steam turbines, also in combined-cycle plants, with bearings subjected to high loads and high temperatures. Suitable where the turbine is equipped with a reduction gear unit.	32, 46, 68	ISO 8068-TSA/TSE/TGA/TGB/TGE TGSB/TGSE DIN 51515-1 TD ASTM D 4304 type II DIN 51515-2 TG GM Lubricant standard LS2 (2004) General Electric GEK 28143B, GEK 32568H, GEK 101941A, GEK 107395A Nuovo Pignone SOM 23543 Nuovo Pignone SOM 23687 Solar ES 9-224 CLASSE II Alstom HTDG 90117 V0001 X Ansaldo Energia 606W807 Rev.C (2012) Siemens TLV 9013 04 Siemens TLV 9013 05
OTE 80/EP	Characteristics: oil with good oxidation resistance and excellent antiwear property (FZG> 9° stage). Excellent demulsibility and antifoam properties. Applications: marine steam turbines, also with associated gear units.	80*	ISO 8068 TSA/TSE NATO O-250 MIL-PRF-17331H (SH)
Alisma 32 PV	Characteristics: oil with good antioxidant and anticorrosion properties. It contains vapour-phase inhibitor which provides corrosion protection. Applications: for initial filling during acceptance testing. Provides also protection during storage, shipping and long stop of gas and vapor turbines and turbochargers.	32	ISO 6743/5 TSA
Turbo 23699	Characteristics: synthetic oil with excellent antioxidant and antiwear properties and very low pour point. Applications: industrial and marine aero-derived gas turbines.	27*	DEF-STAN 91-101/1 ISO L-TGCE NATO O-156 MIL-PRF-23699 Class STD PWA 521-B

* viscosity class not regulated by ISO 3448

Gear oils

Gears transmit mechanical motion from one component to another and may be used in open or enclosed gears. Due to the huge variety of gears it's necessary to take into account of the following aspects in order to choose the most suitable lubricant: gears characteristics (size, metallurgy of teeth), operating conditions (size, vibrations and shocks), oil supply system (oil bath, splash, circulation), operating temperatures and other environmental factors that could have a significant impact.

Eni product line satisfies the needs of lubrication of all types of gears.
Eni has recently introduced a new product line specifically developed for food and pharmaceutical industries.

Mineral oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Blasia	Characteristics: oils with EP (extreme pressure) and excellent antiwear properties. Outstanding demulsibility and corrosion protection. Applications: enclosed gears operating in heavy duty conditions. Low speed plain bearings heavily-loaded, oil-mist lubrication systems.	32, 68 to 680, 540*	ISO 12925-1 CKD DIN 51517-3 CLP ANSI/AGMA 9005-E02 EP AIST No.224
Blasia P	Characteristics: high viscosity grades oils with EP additives and with excellent antiwear property; high adhesion and resistance to washout. Applications: heavily-loaded and low-speed reduction gears (transmission joints of concrete mixers, enclosed gears of mills, open gears of sugar mills).	1000, 2200, 3200	ISO 12925-1 CKC DIN 51517-3 CLP ANSI/AGMA 9005-E02 EP
Blasia FMP	Characteristics: high performance EP gear oils with excellent protection against wear due to "micropitting". Applications: enclosed gears operating under high loads, high speeds and high sliding velocities; hardened gears that could have problems of micropitting damages.	100 to 460	ISO 12925-1 CKD DIN 51517-3 CLP AIST No. 224 ANSI/AGMA 9005-E02 EP Siemens MD (Flender) rev. 15
Blasia BM	Characteristics: high performance EP gear oils with excellent protection against wear (scuffing). Applications: gears operating under very high loads, high velocity and high sliding friction (worm gears, chains, tracks).	220, 320	ISO 12925-1 CKD DIN 51517-3 CLP ANSI/AGMA 9005-E02 EP
FIN 332/F	Characteristics: black coloured oil with good adhesion and good water washout resistance. Applications: open gears also exposed to the atmosphere (wire rope, springs, guides, racks) not subjected to moderate mechanical loads and thermal stresses.	n.d.	ISO 6743/6 CKH-DIL DIN 51513 BC-V
FIN 360EP/F	Characteristics: EP black-coloured oil with good adhesion and water washout resistance. Excellent anti-weld properties. Applications: open gears exposed to atmosphere, subjected to high dynamic loads.	n.d.	ISO 6743/6 CKJ-DIL DIN 51513 BC-V



Synthetic oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Blasia SX	Characteristics: oils based on PAO (polyalphaolefin) with excellent thermal-oxidation stability. Excellent antiwear properties (FZG>12° stage). Applications: gears operating at very high temperatures, bearings of marine separators.	100, 150, 220, 320	ISO 12925-1 CKS ANSI/AGMA 9005-E02 DIN 51517-3 CLP
Blasia FSX	Characteristics: oils based on PAO (polyalphaolefin) with excellent thermal-oxidative resistance. Excellent protection against wear due to "micropitting". Applications: enclosed industrial reduction gears systems operating under severe operating conditions, heavily loaded gear with surface-hardened tooth metallurgies (subject to micropitting).	220, 320, 460	ISO 12925-1 CKD ANSI/AGMA 9005-E02 EP DIN 51517-3 CLP AIST No.224 Siemens MD (Flender) rev. 15 level
Blasia S	Characteristics: oils based on polyglycol with excellent thermal-oxidative resistance and protection against wear due to "micropitting". Applications: bearings and gears operating at very high temperatures, gears where low friction coefficient (worm gears, worm wheel) is required.	150 to 460	ISO 12925-1 CKE/CKT DIN 51502 CLP-PG ANSI/AGMA 9005-E02
Telium VSF	Characteristics: oils based on polyglycol with excellent thermal-oxidative resistance and protection against wear. Applications: worm screws gears, food production plants.	220, 320	ISO 12925-1 CKE/CKT DIN 51502 CLP-PG ANSI/AGMA 9005-E02
Blasia ESB	Characteristics: oils formulated with biodegradable esters. Outstanding antiwear and antioxidant properties. Applications: chains and tracks of earth-moving machineries, gears of agricultural and construction machineries.	220, 460	ISO 12925-1 CKC DIN 51502 CLP-E

Food grade oils



Product	Description	Viscosity ISO VG	Classifications and specifications
Ribes	Characteristics: oils formulated with synthetic base oil and white pharmaceutical oil, antiwear, anticorrosive and EP additives. Applications: high loaded gears, bearings, gearboxes, slideways and conveyor belts.	150 to 680	NSF H1 DIN 51517-3 CLP ISO 6743/6 CKD Kosher Halal
Ribes SX	Characteristics: fully synthetic oil and a special combination of antiwear, anticorrosive and EP additives. Applications: high loaded gears, gearboxes and bearings operating at low and high temperatures, slideways and conveyor belts.	150 to 460	NSF H1 DIN 51517-3 CLP ISO 6743/6 CKT Kosher Halal

* viscosity class not regulated by ISO 3448

Compressor oils

Compressors are used to increase the pressure of air, refrigerant gases and other gases, through mechanical energy. Compressors can be divided into two main families: volumetric and dynamic. The lubricant must reduce friction, minimize wear, remove heat and act as a sealing barrier against gas pressure drops.

Eni compressor oils are suitable to satisfy the performance requirements of most demanding specifications. Eni has recently introduced a new product line specially developed for food and pharmaceutical industries.

Air compressor oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Radula	Characteristics: mineral oils. Applications: reciprocating compressors.	32,46	Danieli Standard n. 0.000.001 rev.15
Acer	Characteristics: mineral oils with antioxidant and antirust properties (R&O oils). Applications: reciprocating compressors operating at medium temperatures.	32 to 680, 800*	ISO 6743/3 DAB DIN 51506 VCL DIN 51506 VBL
Dicrea	Characteristics: mineral oils with antioxidant, antirust and antiwear properties. Absence of carbon residue, also at high temperatures. Applications: reciprocating and rotary compressors operating at very high temperatures.	32 to 320	ISO 6743/3 DAH ISO 6743/3 DAG ISO 6743/3 DAB ISO 6743/3 DAA DIN 51506 VDL DIN 51506 VBL ISO 6743/3 DVA
Dicrea SX	Characteristics: synthetic oils based on PAO (polyalphaolefin) with excellent oxidation resistance that allows to extend the oil-change interval. Applications: screw compressors, reciprocating and rotary compressors.	32, 46, 68	ISO 6743/3 DAB ISO 6743/3 DAJ DIN 51506 VDL
Dicrea ESX	Characteristics: synthetic oil based on esters, with antioxidant, antirust and antiwear properties. Very low carbon deposits at very high temperatures. Applications: cylinders of high pressure reciprocating compressors of big marine diesel engines and relevant cranks compressor components.	100	ISO 6743/3 DAB ISO 6743/3 DAJ DIN 51506 VDL Sperre

* viscosity class not regulated by ISO 3348



Refrigerating compressor oils


Product	Description	Viscosity ISO VG	Classifications and specifications
Betula	Characteristics: naphthenic base oils with low pour point and flock point. High oxidation resistance. Applications: refrigerating compressors.	32, 46, 68	ISO 6743/3 DRA/DRC DIN 51503 KC/KAA
Betula S	Characteristics: synthetic oils based on PAO (polyalphaolefin) with very high viscosity index and very low pour point. High chemical stability to prolong oil charge life. Applications: refrigerating compressors where a long drain interval is required.	32 to 100	ISO 6743/3 DRA/DRC/DRE DIN 51503 KC/KAA
Betula ESX	Characteristics: synthetic oils based on esters with very high viscosity index and very low pour point. High chemical stability to prolong oil charge life. Applications: refrigerating compressors where HFC refrigerants are used.	32 to 220	ISO 6743/3 DRE/DRD DIN 51503 KD/KC

Oils for other compressor types

Product	Description	Viscosity ISO VG	Classifications and specifications
Dicrea TC	Characteristics: oils with very low pour point, good oxidation resistance and excellent antiwear properties (FZG > 9° stage). Excellent antifoam and demulsive properties. Applications: ethylene and ammonia synthesis turbo-compressors. Gas and vapor turbines, centrifugal compressors of chemistry industry.	32, 46, 68	
Dicrea S	Characteristics: water soluble synthetic oil based on polyglycol, with low pour point. Applications: compressors of natural gas, LPG, ammonia, chlorine-fluorine derivatives.	150	ISO 6743/3 DRB/DGC Sulzer Burckhardt
Sic C	Characteristics: mineral oils with anticorrosive and greasing properties. Applications: cylinders of wet air/gas compressors.	150, 220	
OBI 10	Characteristics: vaseline oil. Applications: CO ₂ compressors for dry ice production, SO ₂ refrigerating compressors, ethylene compressors for production of polyethylene.	10	Official Italian Pharmacopoeia - XII edition European Pharmacopoeia - VIII edition USA FDA 21 CFR 172.878 USA FDA 21 CFR 178.3620a
I-Sigma Monograde	Characteristics: mineral oils with detergent and dispersant properties. Applications: small air compressors with splash lubrication system.	30*, 40*	

Food grade oils



Product	Description	Viscosity ISO VG	Classifications and specifications
 C	Characteristics: synthetic oils with high oxidation, corrosion and wear resistance. Applications: air compressors (screw, vane and reciprocating compressors), vacuum pumps.	46, 68, 100	NSF H 1 Halal Kosher ISO 6743/3 DAB ISO 6743/3 DAJ DIN 51506 VDL

* viscosity class according to standard SAE J300

Chain oils

The oils used for lubrication of chains must ensure easy penetration into pins/bushes, providing good grip without any dripping. Such lubricants must create a strong lubricant film, resistant to loads, low tendency to leave residues also when operating at high temperatures and must ensure high resistance to corrosion and water washout.

A new product line has been specifically developed for the food industries.

Mineral and synthetic oils

Product	Description	Viscosity ISO VG	Classifications and specifications
Arum HT	Characteristics: oil based on esters with high thermo-oxidative resistance. Applications: chains and others components operating at high temperature. Suitable for gears and bearings.	220	ISO 12925-1 CKS DIN 51502 CLP-E
Arum ESX	Characteristics: oil based on esters with excellent thermo-oxidative resistance. Applications: chains of industrial furnaces and presses for wood fiber panels operating at high speeds and very high temperatures (up to 260°C). Bearing and gears operating at very high temperatures.	220	
Chainsaw oil	Characteristics: mineral oil with greasing properties that ensure a good lubricant film, also in severe operating conditions. Applications: manual or automatic lubrication of chainsaws.	100	
Eco Lube MS	Characteristics: oil based on biodegradable esters. Applications: manual or automatic lubrication of chainsaws.	46	

Food grade oils



Product	Description	Viscosity ISO VG	Classifications and specifications
Myrtus HT	Characteristics: fully synthetic oils with tackifying, antiwear, anticorrosive and antioxidant additives. Applications: chains, conveyor belts, bearings, slideways. Recommended for applications in wet environments, in presence of water and vapour. Temperature operating range: -25/+180°C.	150, 220, 320	NSF H1 Halal Kosher
Myrtus TSX 320	Characteristics: oil based on esters and antiwear, anticorrosive and antioxidant additives. Outstanding thermo-oxidative stability. Applications: chains and conveyor belts of ovens and dryers confectionery, bakery products, for air sterilization and food homogenization. Temperature operating range: -15/+250°C.	320	NSF H1 Halal Kosher

Heat transfer oils



The heating technique of solids, liquids or gases in industrial systems is of indirect type. This technique involves the use of a thermal carrier (heat transfer oil) that takes heat from a hot source (heat generator) and transfers it where needed. Despite higher costs and operative complexity, several advantages are achieved by an indirect heating system, such as the greater ease of temperature control and uniformity and the ability to serve more users by a single heat source. Also safety is maximized because users are not in direct contact with the heat source.

Eni heat transfer oils are formulated with high quality base oils to ensure excellent heat transfer and a long term protection of the circuits against corrosion and deterioration.

Product	Description	Viscosity ISO VG	Classifications and specifications
Alaria 2 Alaria 3 Alaria 7	Characteristics: oils based on paraffinic basestocks with very high thermo-oxidative stability, outstanding resistance to deposits and sludge formation. Good demulsibility and rapid air-release. Applications: open or closed systems.	n.d.	ISO 6743/12 QB
Alaria 3HT	Characteristics: oil based on high quality paraffinic basestocks that ensure excellent thermo-oxidative stability, very high resistance to deposits and sludge formation, good demulsibility and rapid air-release. Applications: open or closed systems operating at very high temperatures.	n.d.	ISO 6743/12 QC

Transformer oils

Some machineries and electrical components require lubricants with insulating characteristics in order to prevent electrical discharges between surfaces at different electrical potentials that are present, for example, inside transformers. These systems generate a huge amount of heat that lubricant can help to remove thanks to its specific heat and thermal conductivity properties.

Product	Description	Viscosity ISO VG	Classifications and specifications
ITE 600	Characteristics: mineral insulating uninhibited oil with antioxidant properties. Applications: transformers, switchgears, condensers, rheostats and in many other electrical applications.	10	IEC 60296 ed.4 (2012) - Transformer Oil U -30°C
ITE 600 X	Characteristics: mineral insulating inhibited oil with antioxidant properties. Applications: transformers, switchgears, condensers, rheostats and in many other electrical applications.	10	IEC 60296 ed.4 (2012) - Transformer Oil I -30°C

Stationary gas engine oils

Lubricants for large internal combustion engines used in stationary applications. These type of engines are extremely widespread as generators of electricity or used in the environmental sector because they allow to complete the recovery cycle of the most varied types of waste thanks to the use, as fuel, of the gases originated from landfills, wastewater treatment plants or agricultural activities.

Eni product line allows the compliance to most modern manufacturers' specifications and guarantees the possibility to satisfy every operative conditions in terms of fueling gas and engine type adopted.

Product	Description	Viscosity ISO VG	Classifications and specifications
Geum	Characteristics: low ash technology. Applications: natural gas or methane gas fueled engines.	40	Caterpillar Rolls-Royce MTU MDE Dresser-Rand
Geum C	Characteristics: low ash and low phosphorus technology. Applications: natural gas or methane gas fueled engines especially if equipped with catalytic device.	40	Wartsila Guascor
Geum E	Characteristics: high ash and low phosphorus technology. Applications: engines fueled by gas with high acidity content (landfill gas).	40	
Geum SX	Characteristics: synthetic low ash technology, long term performances. Applications: natural gas or methane gas fueled engines where very long drain oil intervals are expected.	40	Rolls Royce
Geum NG	Characteristics: low ash technology, long term performances. Applications: modern engines fueled by natural gas or biogas.	40	GE Jenbacher (approved for gas type A and B) MWM (approved)
Geum LFG	Characteristics: low ash and low phosphorus technology, long term performances. Applications: modern engines fueled by landfill gas, biogas, digestion gas from wastewater sludge treatment.	40	GE Jenbacher (approved for gas type B and C) MAN 3271-4 (approved)

Rust preventive oils

Rust preventive oils are formulated for lubrication and protection of metal surfaces from atmospheric corrosion. They contain polar substances that allow them to adhere and to film the metal surfaces preventing corrosion. When temporary protection is needed, for example in case of short storage time of the workpieces before the final process, the washability is an important requirement in order to avoid formation of deposits.

Rustia F line is formulated with solvents that, evaporating quickly, facilitate the rapid formation of a durable protective film.

Rust preventive oils

Product	Description	Viscosity at 40°C (mm ² /s)
Rustia 27	Characteristics: rust preventive oil. Applications: protection of weapons, work-pieces and machineries.	14
Rustia NT	Characteristics: rust preventive oil. Applications: protection of low carbon steel-rolled and galvanized rolled. Suitable for protection of pipes and metal formed pieces.	20

Rust preventive oils with solvent

Product	Description	Viscosity at 40°C (mm ² /s)
Rustia 68/F	Characteristics: dewatering rust preventive oil, suitable to remove humidity from metallic surfaces. Applications: temporary protection of machined components and work-pieces previously treated with coolant.	1.5
Rustia 100/F	Characteristics: rust preventive oil that leaves, after solvent evaporation, an oily film which ensures effective long-term rust protection. Applications: protection of work-pieces, components and machineries in humid and saline atmosphere.	10
Rustia 250/F	Characteristics: rust preventive oil that leaves, after solvent evaporation, a very resistant waxy film on the treated surface, assuring effective long-term antirust protection even in tropical climates. Applications: recommended for all materials destined to prolonged outdoor storage or sea transport.	12

Heat treatment oils



Eni heat treatment oils are designed for quenching and tempering process on various type of steel for all fields of mechanical engineering.

Eni Simblum line is formulated with paraffinic base stocks with high oxidation stability and with different viscosity grades to meet all the application requirements.

Product	Description	Viscosity at 40°C (mm ² /s)	Specifications
Simblum 2A	Characteristics: cold quick hardening oil. Applications: cold quick hardening treatments of small metal parts, screws and bolts.	17	ISO 6743/14 UHB
Simblum 3	Characteristics: cold normal hardening oil. Applications: cold hardening treatments of metal pieces of various size.	30	ISO 6743/14 UHA
Simblum 3A	Characteristics: cold quick hardening oil. Applications: cold quick hardening treatments of metal pieces of various size particularly for screws and bolts.	34	ISO 6743/14 UHB
Simblum 3L	Characteristics: cold normal hardening oil with washability properties. Applications: cold hardening treatments of metal pieces of various size, suitable when washability of the work-piece is required.	31	ISO 6743/14 UHA
Simblum 5A	Characteristics: semi-hot quick hardening oil. Applications: semi-hot or even cold quick hardening treatments of metal pieces of various size.	62	ISO 6743/14 UHD
Simblum 26A	Characteristics: hot quick hardening oil with high viscosity. High resistance to oxidation and to thermal cracking. Applications: hot quick hardening treatments.	360	ISO 6743/14 UHF


White oils

White oils are manufactured from a particularly refining process of traditional paraffinic base stocks. This process gives particular characteristics of purity, absence of color, smell and taste. These products satisfy the lubrication requirements of the food, pharmaceutical and cosmetic industry. They are also suitable for production of perfumes, cosmetics and pesticides. Technical white oils are used as plasticizers for production of polymers as well.

Technical and medicinal oils

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
OBI 10	Characteristics: white medicinal oil, colorless, tasteless and odorless. Applications: pharmaceutical and food industry, production of cosmetics and for particular industrial applications, such as in CO ₂ compressors for dry ice production, SO ₂ refrigerator compressors, ethylene compressors. Production of plastic materials.	70	Official Italian Pharmacopoeia European Pharmacopoeia USA FDA, 21 CFR 172.878 USA FDA, 21 CFR 178.3620(a)
OBI 12	Characteristics: white medicinal oil, colorless, tasteless and odorless. Applications: pharmaceutical and food industry, production of cosmetics and perfumes. Production of plastic materials.	15	Official Italian Pharmacopoeia European Pharmacopoeia USA FDA, 21 CFR 172.878 USA FDA, 21 CFR 178.3620(a)
OBI T 13	Characteristics: high purity and colorless technical white oil. Applications: precision mechanisms such as watches, firearms and textile machinery. It's also used as anticryptogamic in agriculture field and as a plasticizer in rubber.	15	

Food grade oils

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
 White Oil	Characteristics: white medicinal oils, colorless, tasteless and odorless. Applications: lubrication and protection of bearings, knives and cutting boards for fruits, vegetables and meat where the contact with food is inevitable. Release agent for grills and oven dishes. Suspended chains and conveyor belts. Plasticizer.	22, 70	Official Italian Pharmacopoeia European Pharmacopoeia USA FDA, 21 CFR 172.878 USA FDA, 21 CFR 178.3620(a) NSF H1-H3-3H Halal Kosher

Textile machinery oils



Codium products are developed for the lubrication of machineries of the textile and fibers manufacture industry. The main properties requested for textile oils are: colourless, antistain property to prevent deterioration of fibers and tissues in case of accidental contact and washability to allow its removal from the textile manufacture.

Product	Description	Viscosity at 40°C (mm ² /s)
Codium LS	Characteristics: antistain and colorless products, based on synthetic and white mineral base oils and with antiwear, antioxidant, anticorrosive additives. Excellent adhesive, antidrip and washability properties. Applications: knitwear machinery and stocking machineries needles. Suitable for the lubrication of spindles of machine tools and of the pneumatic tools.	22, 32
Codium L	Characteristics: colourless and antistain white oils with antiwear, antioxidant and anticorrosive additives. Excellent adhesive, antidrip and washability properties. Applications: knitting machine movements and spinning and cabling rings. Lubrication of movements of looms and other weaving machineries.	46, 100

● Circulating oils

Circulating oils are designed for the centralized lubrication of various systems of industrial machines: bearings, gears, etc.






Eni offers a wide range of products, from pure mineral oils for lubrication of weakly loaded systems operating at a moderate temperatures, to higher technology oils designed for the most severe operating conditions.

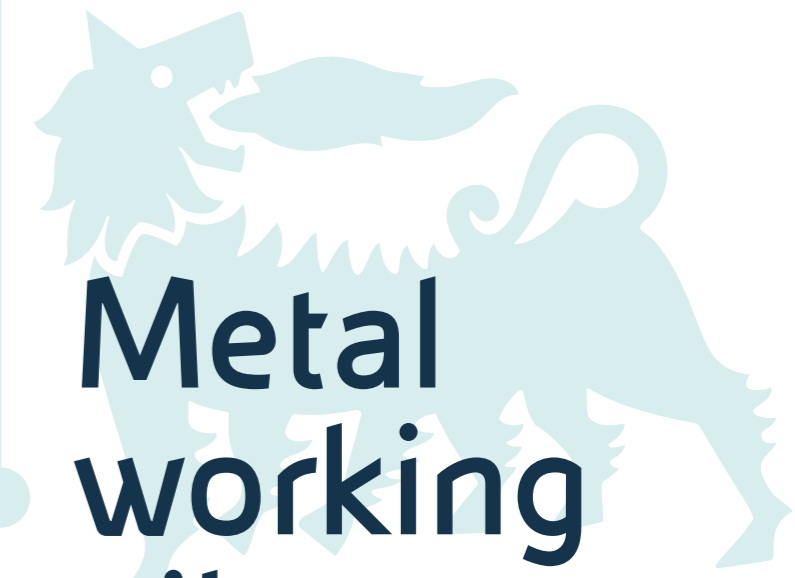
Product	Description	Viscosity ISO VG	Classifications and specifications
Acer	Characteristics: mineral oils with outstanding antioxidant and antirust properties. Excellent demulsibility. Applications: plain and rolling bearings, air compressors and gears where EP properties are not requested.	15 to 800	ISO 6743/4 HL ISO 6743/3 DAB ISO 6743/6 CKB DIN 51524-1 HL DIN 51517-2 CL AFNOR NF E 48600 HL BS 4231 HSC ANSI/AGMA 9005-E02
Acer MV	Characteristics: low viscosity mineral oil with outstanding antioxidant and antirust properties. Applications: fast spindles of machine tools, stocking machine needles, calibration fluid.	10	ISO 6743/2 FC
Acer MP	Characteristics: mineral oils with outstanding antioxidant, antirust and antiwear properties. Applications: rolling-mills bearings and gears.	100 to 460	Danieli Standard n.0.000.001-Rev.15
Acer MPK	Characteristics: mineral oils with outstanding detergent, demulsive and antiwear properties. Applications: bearings and gears of papermaking machineries.	150, 220	
Acer LD	Characteristics: mineral oil with outstanding antiwear, antioxidant and demulsive properties. Excellent wettability. Applications: No-Twist mills bearings, systems not subjected to high load.	100	Danieli Standard n.0.000.001-Rev.15
Calibration Fluid	Characteristics: very low viscosity mineral oil with outstanding antioxidant, antifoam and antirust properties. Applications: calibration and testing of diesel fuel injectors.	n.d.	

● Food grade lubricants aerosol

Eni lubricants aerosol, NSF H1 registered, designed to meet the main lubrication needs of food, pharmaceutical and cosmetic industry.



Product	Description	Range of use, °C	Classifications and specifications
Ribes  Multipurpose	Characteristics: multipurpose synthetic lubricant spray. High protection against corrosion, good antiwear and antioxidant properties, resistance to water washout. Applications: chains, slideways, bearings, small gears, conveyor belts operating in a wide range of temperature.	-50/+180 (after solvent evaporation)	NSF H1
Ribes  Rust remover	Characteristics: dismantling and rust preventive synthetic lubricant spray. Applications: loosens extremely rusty screws and nuts, rust removing, long-term corrosion protection of agricultural and industrial machineries.	-50/+180 (after solvent evaporation)	NSF H1
Ribes  Silicone fluid	Characteristics: silicone lubricant spray. Applications: connections, chains, slideways, seals and components operating in a wide range of temperature. Release agent and protective agent for plastics surfaces.	-50/+200	NSF H1
Rubus  High Performance Grease	Characteristics: multipurpose EP synthetic grease spray thickened with calcium sulphionate complex. Very high resistance to corrosion and water washout. Applications: chains, conveyor belts, hinges, small gears and bearings, even loaded, operating in a wide range of temperature in wet environments and in presence of water or steam.	-45/+180 (peaks 200) (after solvent evaporation)	NSF H1
Lavanda  Universal	Characteristics: fast solvent based lubricant spray. Applications: removal of dirt, oil residues, grease and sludges from surfaces tools and machineries.	-30/+40	NSF H1



Metal working oils

The continuous technological advancement of machine tools and metal processing, together with the need to guarantee the environment protection and the respect of relevant regulations, have urged the Eni Research to develop new lines of metalworking lubricants that satisfy all these requirements.

Eni metalworking lines include:



Neat cutting oils
- Aster line, mineral oil based
- Fresia ESB line, ester oil based



Water miscible cutting oils
- Aquamet line



Stamping oils
- Alnus line

Neat cutting oils



Grinding, lapping and honing oils

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
OPL 5	Characteristics: low viscosity mineral oil. Applications: lapping and honing on ferrous and non-ferrous metals.	5	ISO 6743/7 MHA
Aster L/S	Characteristics: semi-synthetic oil, good detergent properties. Low smoke and mists emissions. Applications: grinding, lapping and honing operations on ferrous and non-ferrous metals and for automatic machining of small metal parts.	7.5	ISO 6743/7 MHB
Aster L	Characteristics: low viscosity mineral oil with antiwear additives. Low smoke and mists emissions. Applications: grinding, lapping and honing operations on ferrous and non-ferrous metals and for automatic machining of small metal parts.	10	ISO 6743/7 MHB
Aster MM/E	Characteristics: mineral oil with antiwear additives. Low smoke and mists emissions. Applications: grinding and cutting operations, not severe, on ferrous and non-ferrous metals. Indicated for automatic turning, milling and drilling of small metal parts.	14	ISO-6743/7 MHB
Aster RF	Characteristics: mineral oil with antiwear additives. Applications: roughing and finishing grinding operations on ferrous and non-ferrous metals. Gears grinding.	18	ISO 6743/7 MHB
FSM 22	Characteristics: mineral oil with antifricition additives. Good detergent property. Applications: grinding and honing of ferrous and non-ferrous metals, especially recommended for copper, brass and their alloys.	18	ISO 6743/7 MHB

Multifunctional oil

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
Aster MP	Characteristics: mineral oil formulated with antiwear and EP additives. Applications: multifunctional oil for metal cutting operations and for lubricating machine tools (hydraulic system and slideways). Suitable for medium-severe automatic machining on ferrous and non-ferrous metals. Recommended in machine tools where contamination of the cutting fluid by the lubricating oil may occur.	32	ISO 6743/7 MHE

Cutting oils for medium-severe operations

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
Aster MM	Characteristics: mineral oil with antiwear additives. Applications: milling, drilling, and turning on ferrous and non-ferrous metals.	30	ISO 6743/7 MHB
Aster TA/E	Characteristics: mineral oil with antiwear additives. Applications: automatic turning, milling, reaming, tapping and threading on stainless steel, steel alloys, aluminum and yellow metals. Gears grinding and roughing grinding operations.	17	ISO 6743/7 MHB
Aster LO	Characteristics: mineral oil with antiwear and EP additives. Applications: suitable for medium-severe cutting operations such as: automatic turning of small metal parts, milling, drilling, threading on steels with high machinability index and on cast iron.	22	ISO 6743/7 MHE

EP cutting oils for severe operations

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
Aster DE	Characteristics: mineral oil with antiwear and EP additives. Applications: medium and severe operations such as: turning, milling, boring, gear cutting and threading on stainless steel, steel alloys, titanium, aluminium and yellow metals.	20	ISO 6743/7 MHE
Aster TA/S	Characteristics: mineral oil with antiwear and EP additives. Applications: medium and severe operations of turning, milling, boring, gear cutting, shaving, threading and slotting on stainless steel, steel alloys, titanium, aluminium and yellow metals.	35	ISO 6743/7 MHE
Aster FP	Characteristics: mineral oil with EP additives. Applications: deep drilling on steel, stainless steel, aluminium and its alloys and titanium. Suitable for gears grinding. Product not suitable for machining of copper and its alloys.	12	ISO 6743/7 MHF
Aster TG	Characteristics: mineral oil with EP additives. Applications: severe cutting operations and gears cutting on fellows and hobbing machines. Product not suitable for machining of copper and its alloys.	32	ISO 6743/7 MHF
Aster S	Characteristics: mineral oil with EP additives. Applications: severe cutting operations like gears cutting and shaving operations when a high degree of surface finishing is required. It can be used for tapping, threading and broaching. Product not suitable for machining of copper and its alloys.	38	ISO 6743/7 MHF
Aster M	Characteristics: high viscosity mineral oil with EP additives. Applications: slow-speed automatic tapping machines and severe hand tapping operations on steels, stainless steels. Product not suitable for machining of copper and yellow alloys. Suitable for stamping.	175	ISO 6743/7 MHF

Biodegradable ester based cutting oils

Product	Description	Viscosity at 40°C (mm ² /s)	Classifications and specifications
Fresia ESB 10	Characteristics: low viscosity ester based oil with EP additives. Applications: medium and severe cutting operations on alloy steel and stainless steel, on aluminium and its alloys, titanium and its alloys and on yellow metals. Particularly recommended for gears grinding and for sharpening gear cutting tools.	10	ISO 6743/7 MHE
Fresia ESB 25	Characteristics: ester based oil with EP additives. Applications: medium and severe cutting operations like: milling, turning, gears boring, gears cutting, shaving and slotting on alloy steel, stainless steel, aluminum and its alloys, titanium and its alloys and yellow metals. Suitable for blanking, punching and for minimum quantity lubrication (MQL).	25	ISO 6743/7 MHE
Fresia ESB 35	Characteristics: ester based oil with EP additives. Applications: medium and severe cutting operations like: milling, turning, gears boring, tapping, gears cutting, shaving, slotting and broaching on alloy steel and stainless steel, aluminium and its alloys, titanium and its alloys and on yellow metals. Suitable for blanking, punching, for medium-light stamping operations and for minimum quantity lubrication (MQL).	35	ISO 6743/7 MHE

Water miscible cutting oils



Cutting oils with translucent emulsion

Product	Description	Classifications and specifications
Aquamet 85	Characteristics: semi-synthetic oil with anticorrosive properties and high resistance to microbial attack. Applications: grinding and cutting operations such as turning, milling, boring and drilling on all ferrous materials in single and centralized systems. Very good for pipes formation.	ISO 6743/7 MAE
Aquamet 500 FG	Characteristics: semi-synthetic oil with anticorrosive properties, high detergency and low formation of foam with a wide range of water hardness and high-pressure delivery. High resistance to microbial attack. Applications: grinding, turning, milling and drilling on all ferrous materials in single and centralized systems.	ISO 6743/7 MAE
Aquamet 500 FG ECO	Characteristics: semi-synthetic oil with anticorrosive properties, free of boron and biocide. High detergency and low formation of foam with wide range of water hardness and with high-pressure delivery. High resistance to microbial attack. Applications: grinding, turning, milling, and drilling on all ferrous materials in single and centralized systems.	ISO 6743/7 MAE
Aquamet 260 EP	Characteristics: semi-synthetic EP oil with anticorrosive properties. High resistance to microbial attack. Applications: all medium and severe cutting operations such as boring, tapping, deep drilling and threading on ferrous metals in single and centralized systems. Suitable for medium severe metal stamping and deep drawing operations.	ISO 6743/7 MAF
Aquamet 700 MB	Characteristics: semi-synthetic oil with anticorrosive properties free of boron and bactericide. High resistance to microbial attack. Applications: grinding and not severe operations on alloy steel and cast iron.	ISO 6743/7 MAE

Cutting oils with milky emulsion

Product	Description	Classifications and specifications
Aquamet 104	Characteristics: multipurpose EP oil with antiwear and anticorrosive properties. High resistance to microbial attack. Applications: medium and severe operations as tapping, threading and deep drilling on ferrous and non ferrous metals, aluminium, copper and their alloys.	ISO 6743/7 MAD
Aquamet 700 HP	Characteristics: multipurpose oil with corrosion protection and antiwear properties. Low formation of foam with a wide range of water hardness and high-pressure delivery. High resistance to microbial degradation. Applications: medium and severe cutting operations as turning, milling, reaming, deep drilling, threading on all ferrous and non ferrous metals in single and centralized systems.	ISO 6743/7 MAB

Cutting oils with milky emulsion

Product	Description	Classifications and specifications
Aquamet 700 HP ECO	Characteristics: multipurpose oil with corrosion protection and antiwear properties, free of boron and biocide. Low formation of foam with a wide range of water hardness and high-pressure delivery. High resistance to microbial degradation. Applications: medium and severe operations as turning, milling, reaming, deep drilling, threading on all ferrous and non ferrous metals.	ISO 6743/7 MAB
Aquamet 205	Characteristics: oil with corrosion protection and antiwear properties, free of boron and derivatives. High resistance to microbial degradation. Applications: medium severe operations as turning, milling, drilling of all ferrous metals, copper and yellow alloys, aluminium alloys, AVP and steel. Suitable for fittings industries.	ISO 6743/7 MAB
Aquamet 700 EP	Characteristics: multipurpose oil with corrosion protection, antiwear and EP properties, free of bactericide, chlorine, boron and derivatives. High resistance to microbial degradation. Applications: medium and severe cutting applications, in single and centralized systems. Suitable for all ferrous materials, titanium, magnesium, aluminum and their alloys and in a wide range of water hardness and pressure. Not suitable for yellow metals.	ISO 6743/7 MAC
Aquamet 700 Extreme	Characteristics: EP oil, free of boron and derivatives and biocide. High resistance to microbial degradation. Low formation of foam with a wide range of water hardness and high-pressure delivery. Applications: severe operations such as tapping, broaching, MAPAL boring, deep drilling on aluminium and its alloys, steel and stainless steel, copper and its alloys. Not suitable for cast iron.	ISO 6743/7 MAD

Grinding synthetic fluid

Product	Description	Classifications and specifications
Aquamet S 700 BS	Characteristics: water soluble fluid with high corrosion protection property, free of mineral oil, boron and bactericide. High stability to microbial degradation. Transparent emulsion. Applications: grinding and light cutting operations on ferrous metals, aluminium, copper and their alloys.	ISO 6743/7 MAG

Cleaning product for tool machines

Product	Description	Classifications and specifications
Aquamet CL 33	Characteristics: detergent product. Applications: cleaning of tanks and circuits of the machine tools.	

For further information on Eni metalworking oils (selection criteria, preparation of the emulsion, management and monitoring of coolant in service) please refer to the Eni Metalworking brochure.

Tables of main characteristics of metalworking oils



Main characteristics of neat cutting oils

Neat Cutting Oils	Characteristics		Machining											Materials							
	VISCOSITY AT 40°C, cSt	FLASH POINT, °C	TYPE OF BASE	LAPPING / HONING	GRINDING	TURNING / MILLING	DRILLING	BORING	GEAR CUTTING	GEAR SHAVING	TAPPING / THREADING	BROACHING / SLOTTING	DEEP DRILLING	MINIMAL LUBRICATION	MULTIFUNCTIONAL	STEELS	STEEL AND STAINLESS STEEL	CAST IRON	TITANIUM AND ALLOYS	ALUMINIUM AND ALLOYS	COPPER AND YELLOW ALLOYS
OPL 5	4.5	130	M	✓											✓	✓	✓	⊗	✓	✓	
Aster L/S	7.5	170	M/S	✓	✓	⊗									✓	✓	⊗	✓	✓	✓	
Aster L	10	145	M	✓	✓	⊗	⊗								✓	✓	✓	✓	✓	✓	✓
Aster RF	18	200	M		✓	✓	⊗	⊗							✓	✓	✓	✓	✓	✓	✓
FSM 22	18	205	M/S	✓	✓	✓	⊗	⊗							✓	✓	⊗	⊗	✓	✓	✓
Aster MM/E	14	195	M		✓	✓	⊗	⊗							✓	✓	✓	⊗	✓	✓	✓
Aster TA/E	17	200	M		✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓
Aster LO	22	200	M		✓	✓	✓	✓							✓	✓	✓	✓	⊗	✓	✓
Aster MM	30	200	M			✓	✓	⊗							✓	✓	✓	⊗	✓	✓	✓
Aster MP	32	230	M			✓	✓	✓	⊗					✓	✓	✓	✓	✓	⊗	✓	✓
Aster DE	20	200	M			✓	✓	✓	✓	⊗	⊗	⊗	⊗		✓	✓	✓	✓	⊗	✓	✓
Aster TA/S	35	220	M			✓	✓	✓	✓	⊗	✓	⊗			✓	✓	✓	✓	⊗	✓	✓
Aster TG	32	215	M			✓	✓	✓	✓	⊗	✓	⊗			✓	✓	✓	✓	⊗		
Aster S	38	200	M			✓	⊗	✓	✓	✓	✓	✓			✓	✓	✓	✓	⊗		
Aster M	175	210	M								✓	⊗			✓	✓	✓	✓	⊗		
Aster FP	12	170	M		⊗		✓	✓				⊗	✓		✓	✓	✓	✓	⊗		
Fresia ESB 10	10	202	S		⊗	✓	✓	✓				✓	✓		✓	✓	⊗	✓	✓	✓	✓
Fresia ESB 25	25	234	S			✓	✓	✓	✓	⊗	✓	⊗	✓		✓	✓	⊗	✓	✓	✓	✓
Fresia ESB 35	35	245	S			⊗	⊗	✓	✓	✓	✓	✓			✓	✓	⊗	✓	✓	✓	✓

LEGEND
M mineral oil
M/S mineral oil + synthetic esters
S synthetic esters
☐ not good
⊗ good
✓ very good

Main characteristics of water miscible cutting oils

	Semi-synthetic					Emulsifiable						Synthetic
	Aquamet 85	Aquamet 500 FG	Aquamet 500 FG ECO	Aquamet 700 MB	Aquamet 260 EP	Aquamet 700 HP	Aquamet 700 HP ECO	Aquamet 205	Aquamet 104	Aquamet 700 EP	Aquamet 700 Extreme	Aquamet S 700 BS
CHARACTERISTICS												
Refractometer factor	1.9	1.7	1.7	2.5	1.4	1.3	1.0	1.0	1.2	1.5	1.0	2.5
Emulsion Aspect	Translucent					Milky			Opalescent		Milky	Transparent
IP 125 (Herbert Test)	2%	2%	5%	3%	2%	3%	5%	2%	2%	3%	5%	3%
Antifoam properties 0-30 bar	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞	∞∞∞	∞∞∞	∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞
Antifoam properties 30-50 bar	∞	∞∞∞	∞∞∞	∞∞	∞∞	∞∞∞	∞∞∞	∞	∞∞	∞∞∞	∞∞	∞∞∞
Antifoam properties > 50 bar		∞∞∞	∞∞		∞	∞∞∞	∞∞		∞∞	∞∞∞	∞∞	∞
Soft water 0-10°F	∞	∞∞∞	∞∞	∞∞	∞∞	∞∞∞	∞∞		∞∞	∞∞∞	∞	∞∞∞
Medium water 10-30°F	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞
Hard water 30-50°F	∞∞	∞∞∞	∞∞∞	∞∞	∞∞	∞∞∞	∞∞∞	∞	∞∞	∞∞∞	∞∞	∞∞
WORKED METAL												
Cast iron	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞	∞∞		∞∞	∞		∞∞
Steels	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞
Aluminium and alloys	∞	∞	∞	∞		∞∞∞	∞∞∞	∞∞	∞∞	∞∞∞	∞∞∞	∞∞
Magnesium and alloys							∞∞			∞∞		
Titanium and alloys						∞∞	∞∞	∞		∞∞∞		
Yellow alloys						∞∞	∞	∞∞∞	∞∞		∞∞	∞
MACHINING												
Grinding (external - internal)	∞∞∞	∞∞∞	∞∞∞	∞∞∞		∞			∞	∞		∞∞∞
Turning, Milling	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞∞
Boring, Drilling	∞∞	∞∞	∞∞	∞∞	∞∞∞	∞∞∞	∞∞∞	∞∞	∞∞∞	∞∞∞	∞∞∞	∞
Deep drilling, Threading					∞∞∞	∞∞	∞∞∞	∞	∞∞∞	∞∞	∞∞∞	
Aluminium Mapal Boring							∞∞		∞∞	∞∞	∞∞∞	

LEGEND
∞ = good enough
∞∞ = good
∞∞∞ = very good

Metal forming oils



Chlorine free press-forming oils

Product	Description	Viscosity at 40°C (mm ² /s)
Alnus 134 A	Characteristics: ester based oil with antifriction properties. Applications: light stamping operations of all ferrous metals, aluminum, copper and alloys. Suitable for press-forming of aluminium radiators.	32
Alnus SSC 608	Characteristics: mineral oil with antiwear and EP additives. Applications: press-forming and deep-drawing operations on steel, stainless steel, aluminium and alloys. Suitable for cold rolling of pipes.	115
Alnus SSC 616 L	Characteristics: mineral oil with antiwear, EP additives and emulsifiers for easy washability. Applications: press-forming and deep-drawing operations on steel, stainless steel, aluminium and alloys. For not severe operations, it may be used temporarily emulsified with water at strengths between 20% and 80% by weight, depending on severity.	220
Trafila 605	Characteristics: mineral oil reinforced with synthetic esters. Applications: drawing processes of bars and wires of copper and its alloys. Excellent behavior in annealing process.	205

Press-forming and drawing oils with chlorine

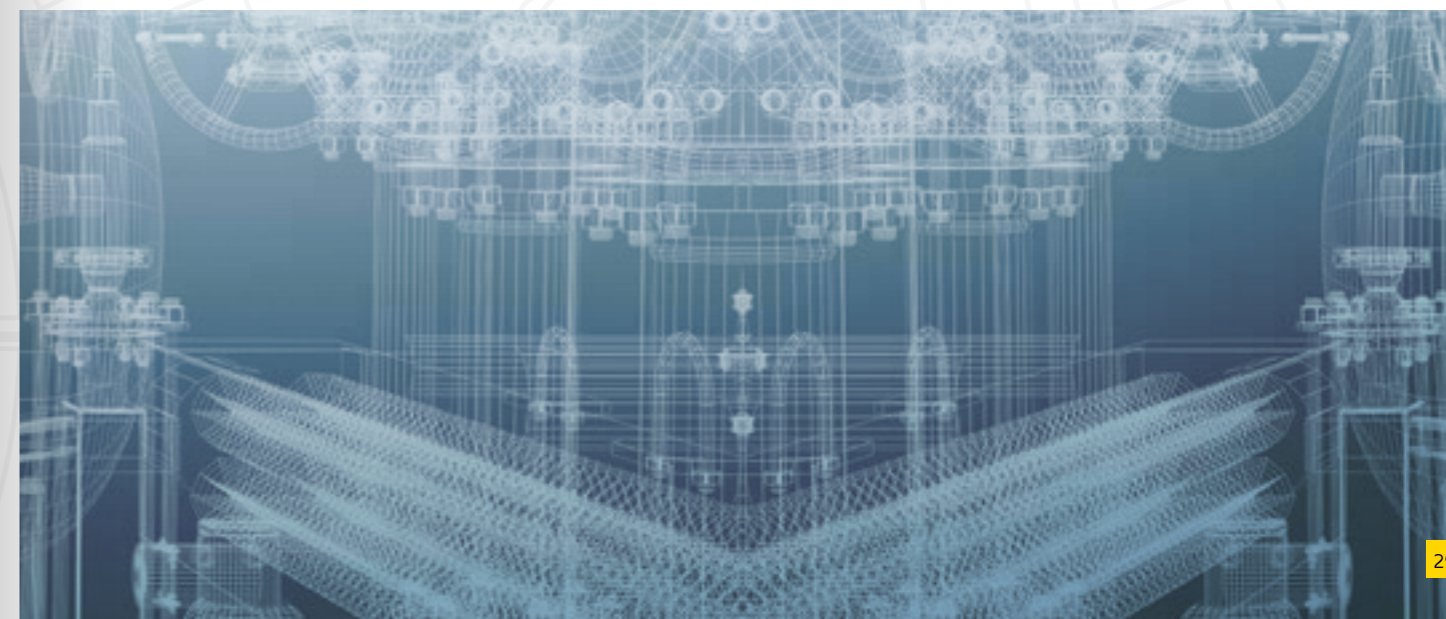
Product	Description	Viscosity at 40°C (mm ² /s)
Alnus PF 610	Characteristics: mineral oil with antiwear and EP additives. Applications: heavy press-forming and deep-drawing operations on steel, stainless steel, aluminium and alloys.	52
Alnus PF 612	Characteristics: mineral oil with antiwear and EP additives. Applications: heavy press-forming and deep-drawing operations on steel, stainless steel, aluminium, copper and alloys.	160
Alnus 136	Characteristics: high viscosity mineral oil with antiwear and EP additives. Applications: particularly recommended for bar and wire-drawing operations on steel and stainless steel. Heavy press-forming and deep-drawing operations.	415
Alnus 336 AV	Characteristics: high viscosity mineral oil with antiwear and EP additives. Applications: particularly recommended for bar and wire-drawing operations on steel and stainless steel. Heavy press-forming and deep-drawing operations.	365

Cold rolling oils

Product	Description	Viscosity at 40°C (mm ² /s)
Rolling TNX	Characteristics: low viscosity mineral oil with anticorrosion, antifriction and antioxidant additives. Applications: cold rolling of stainless steel and titanium on Sendzimir mills.	12
Rolling AST 2	Characteristics: low viscosity mineral oil with anticorrosion, antifriction and antioxidant additives. Applications: cold rolling of stainless steel and titanium on Sendzimir mills.	8
Lamium 11 Lamium 11 C	Characteristics: highly refined, odorless, colorless, de-aromatized and de-sulfurized fluids. Applications: particularly suitable for aluminium cold rolling sheets and coils with thin thickness for food, pharmaceutical and cosmetic industries. During the annealing process, the products evaporate, ensuring the complete absence of residues and stains. Meet the requirement of F.D.A. 178.3910	1.7

Hydraulic oils for rolling plants

Product	Description	Viscosity at 40°C (mm ² /s)
Hydraulic oil AST	Characteristics: mineral oil with antirust and antioxidant properties. Applications: Sendzimir mills in stainless steel, titanium and copper rolling processes.	32
Hydraulic oil TNX	Characteristics: mineral oil with antirust and antioxidant properties. Applications: Sendzimir mills in stainless steel, titanium and copper rolling processes.	46





Greases

According to the definition given by ASTM (American Society of Testing Material), a lubricating grease is a solid to semifluid product composed by a thickening agent in a liquid lubricant. The most used thickeners are metallic soaps, organic and inorganic thickeners. The base oils used can be: mineral, synthetic, vegetable or esters of natural or synthesis origin. The combination of thickeners, base oils and additives gives to the grease its characteristics, performance and range of use. The National Lubricating Grease Institute (NLGI) has developed a numerical scale to classify the consistency of greases. It defines nine distinct grades of greases, ranging from 000 (extremely fluid) to 7 (solid).



Eni offers a very wide range of lubricating greases for all applications in a variety of sectors: heavy industry (cement plants, steel mills), papermaking, factories and marine applications.



Rubus line is specifically developed for food industry and is registered by NSF as H1, i.e. "Authorized where the lubricant may incidentally come into contact with food".



Calcium greases

Product	Description	NLGI Grade	Classifications	
			ISO 6743	DIN 51502
Grease CC	Characteristics: yellow, smooth-textured, anhydrous calcium greases. Good water washout resistance. Applications: journals, bearings, guides and universal joints exposed to moisture and water, to thermal and mechanical stresses not high.	2; 3; 4	L-XBBGA 2 L-XBBGA 3 L-XBBGA 4	K 2G -20 K 3G -20 K 4G -20
Eco Grease	Characteristics: biodegradable greases with vegetable base, brown and smooth-textured. Applications: total loss lubrication system on agriculture machinery and marble cutting machines, operating in environmentally sensitive areas.	0; 2	L-XCBDA 0 L-XCBDA 2	K 0F -30 K 2F -30
Eco Grease Plus	Characteristics: biodegradable multipurpose EP anhydrous calcium grease based on synthetic esters, light brown and smooth-textured. Excellent adhesion, outstanding anticorrosive and protective properties. Excellent water washout resistance. Applications: lubrication in environmentally sensitive areas, agriculture, marble cutting, water treatment plants. Chains, wire ropes, ships on-deck applications, lifting crane in marine environment. Readily biodegradable grease according to OECD 301B method.	2	L-XCCHB 2	KP 2K - 30
Grease PV	Characteristics: ivory, smooth-textured, EP anhydrous calcium grease. Excellent adhesion, outstanding protective and anticorrosive properties, very high water washout resistance, also in salt water. Applications: components exposed to the atmosphere or in corrosive environments (parts of engines and transmissions of motor vessels, chains, ropes and other marine equipment).	2	L-XBBHB 2	KP 2G -20
Autol TOP 2000	Characteristics: EP multipurpose anhydrous calcium grease, green fluorescent colored and smooth-textured appearance. Very High adhesive properties. Applications: robot, vehicle and industrial machineries, conveyors belts and boats. Bearings, gears, cables and chains under heavy dynamic loads, working in marine environments and high humidity.	2	L-XCBHB 2	KP 2G -30
Grease NG	Characteristics: dark, smooth-textured, anhydrous calcium grease containing graphite. Applications: open gears, chains, ropes, slow-moving and heavily-loaded machine parts in general, especially when operating in dusty ambient.	3	L-XBBGA 3 L-CKG 3	OGF 3G -20 KF 3G -20

Lithium greases

Product	Description	NLGI Grade	Classifications	
			ISO 6743	DIN 51502
Grease MU	Characteristics: multipurpose yellow-brown and smooth-textured greases. Applications: plain and roller bearings, joints, couplings and other parts of all types of industrial, construction, agricultural machineries, not heavy loaded.	1; 2; 3	L-XBCHA 1 L-XBCHA 2 L-XBCHA 3	K 1K -20 K 2K -20 K 3K -20
Grease MU EP	Characteristics: multipurpose EP, yellow-brown, smooth-textured greases. Applications: heavily loaded plain and roller bearings, chains, ropes and components operating under mechanical stresses and at high temperatures. Enclosed gears, reduction gearboxes, centralized lubrication systems of vehicles, industrial and agricultural machineries.	00; 0; 1; 2; 3	L-XBCHB 0 L-XBCHB 1 L-XBCHB 2 L-XBCHB 3 L-CKG 00 L-CKG 0 L-CKG 1	KP 1K -20 KP 2K -20 KP 3K -20 GP 00K -20 GP 0K -20 GP 1K -20
Grease LP	Characteristics: black, smooth-textured, EP lithium-calcium greases. Applications: steel industry, plans and rolling bearings, loaded gears, universal joints and moving parts.	0; 1; 2	L-XBCHB 0 L-XBCHB 1 L-XBCHB 2	KP 1K -20 KP 2K -20
Grease SM	Characteristics: black, smooth-textured grease containing molybdenum disulphide. Applications: plans and rolling bearings subjected to extreme mechanical or thermal stresses, wire ropes, chains and open gears.	2	L-XBCHB 2 L-CKG 2	KPF 2K -20 OGPF 2K -20
Litio Grease 475	Characteristics: brown-yellow and smooth-textured greases. Applications: open gears and machineries operating in dusty and humid environment and where a strong adhesiveness is required.	1.5	L-XBCDA 1.5	K 1.5K -20
Grease SLL	Characteristics: whitish, smooth-textured, fluid synthetic grease. Applications: enclosed gears of low and medium power gear reduction units lubricated "for life".	00	L-XCDHE 00 L-CKG 00	GPG 00 K -30
Autol Fliessfett ZSA	Characteristics: gray, smooth-textured grease. Excellent corrosion and water washout resistance. Applications: centralized lubrication systems of commercial vehicles and industrial plants. Recirculating ball guides of working centers and enclosed gears of reducers operating at low or medium power.	00/000	L-XECEB 00/000 MB 264 MAN 283 Willy Vogel Lincoln	GP 00/000 K-50
Sagus 60	Characteristics: black and stringy grease with graphite. Applications: open gears, worm screws, racks, rollers, chains, wire ropes. Recommended for cement plants.	0/00	L-XACDA 0/00 L-CKG 0/00 L-CKL 0/00	OGF 0/00K -10 GF 0/00K -10
SP GR MU	Characteristics: light-brown lithium, smooth-textured grease. Applications: plain and rolling bearings, swivels, joints and other parts of industrial, construction and agricultural machineries and for road-haulage trucks. Recommended for automatic, centralized lubrication of rail-wheel flanges.	00	L-XBCDA 00	G 00K -20
Grease CT 350 EP	Characteristics: mineral grease light-brown colored. Applications: rolling bearings, roller bushings of railway vehicles.	3	L-XBCHB 3	KP 3K -20



Lithium complex greases

Product	Description	NLGI Grade	Classifications	
			ISO 6743	DIN 51502
Grease LC	Characteristics: multipurpose EP, amber greases. Applications: plain and roller bearings and other components operating in severe conditions (high temperatures, water presence, extreme pressure). Centralized lubrication systems (NLGI 1).	1; 2	L-XBDHB 1 L-XBDHB 2	KP 1N -20 KP 2N -20
Grease LCX 1/220 2/220	Characteristics: multipurpose EP, light gray, smooth-textured synthetic greases. Applications: joints, bearings of paper machines and rolling mills, plain and rolling bearings operating in severe conditions (water, heavy loads, high temperatures, vibrations). NLGI 1 is recommended for centralized lubrication systems of continuous casters, rolling mills, hot presses and continuous paper machines.	1; 2	L-XDEHB 1 L-XDEHB 2	KPHC 1P-40 KPHC 2P -40
Grease LCX 2/32	Characteristics: light gray and smooth-textured synthetic grease. Applications: high speed bearings and components operating at low temperatures such as in refrigeration plants (not in contact with food).	2	L-XEDHB 2	KPHC 2N -50
Grease LCX 2/100	Characteristics: multipurpose EP synthetic grease. Light gray and smooth-textured. Applications: bearing and components of devices operating at high speed where long lubrication intervals are required (electric motors and wind turbine generators).	2	L-XDEHB 2	KPHC 2P -40
Grease LCX 1,5/460	Characteristics: light gray, smooth-textured EP synthetic grease. Applications: heavily loaded open gears, slow speed reduction gears operating in wet environmental and at high temperatures. Steel and paper industry, excavators, TBM (Tunnel Boring Machine) and wind turbine generators.	1.5	L-XDFHB 1.5	KPHC 1.5R -40
Grease MSX 2/460	Characteristics: black, smooth-textured, EP synthetic grease containing molybdenum disulphide. Applications: bearings, open gears, wire ropes and components operating at slow speed, high loads, high temperatures and in wet environments. Steel, paper and glass industries, cement plants. Agricultural machineries, excavators and TBM (Tunnel Boring Machine).	2	L-XDFHB 2 L-CKG 2 L-CKL 2	KPF HC 2R -40 OGPF HC 2R -40 GPF HC 2R -40

Aluminium complex greases

Product	Description	NLGI Grade	Classifications	
			ISO 6743	DIN 51502
Grease AC	Characteristics: EP pumpable greases. Excellent water washout resistance and excellent stability at high temperatures. Applications: steel, paper and glass industry. Centralized grease systems of hot forming guides.	1; 2	L-XBDHB 1 L-XBDHB 2	KP 1N -20 KP 2N -20
Greases Sagus AC 460	Characteristics: black and stringy grease containing graphite. Applications: open gears, worm screws, racks, rollers, chains, metal cables operating at high temperatures. Cement plants (open gears of rotation of the furnaces and mills crushing), centralized automatic systems.	00	L-XADHB 00 L-CKG 00 L-CKL 00	OGFP 00 K-10 GFP 00 K-10

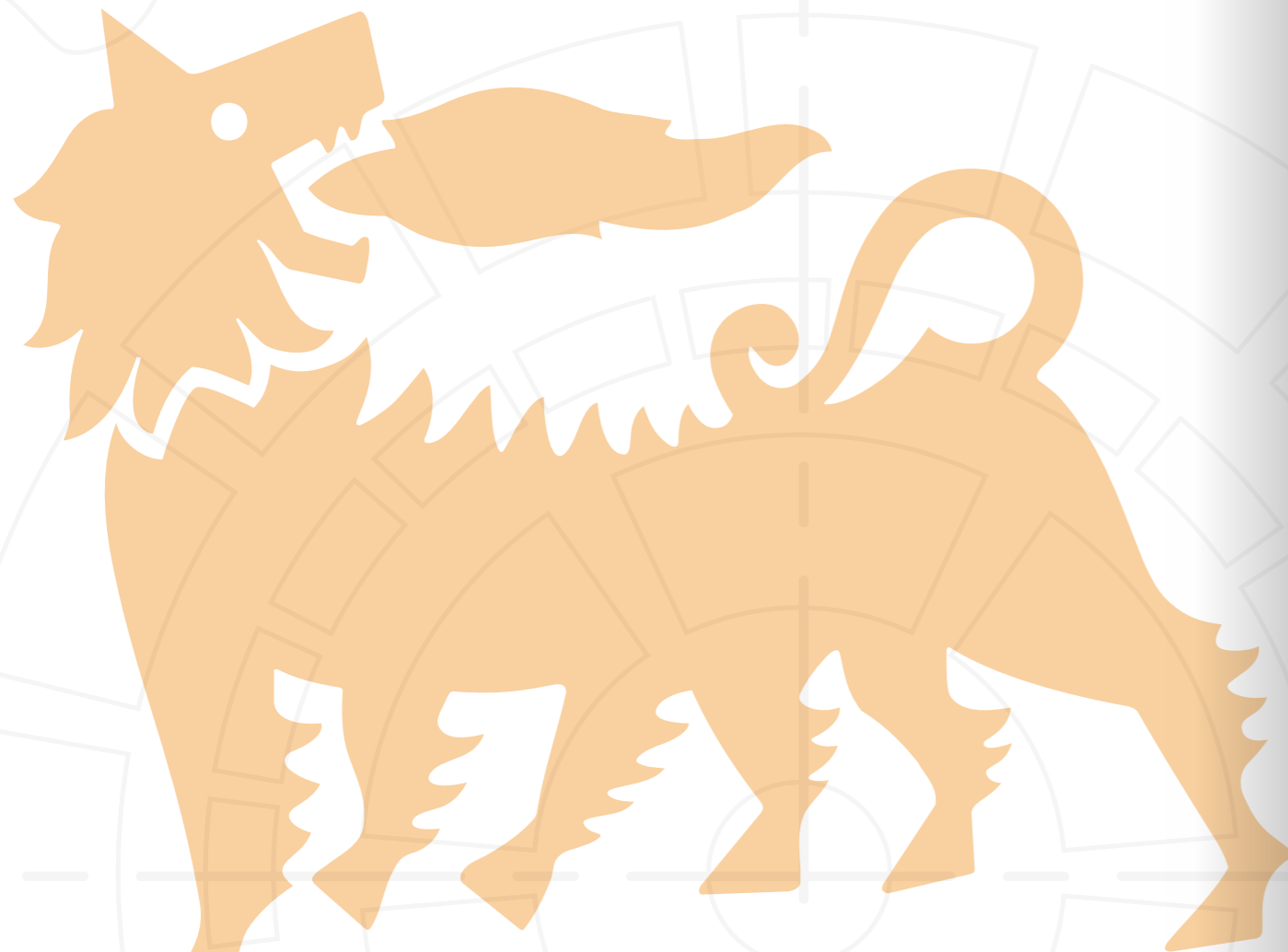
Other greases

Product	Description	NLGI Grade	Classifications	
			ISO 6743	DIN 51502
Grease NF	Characteristics: yellow-brown, smooth-textured bentone grease. Non-melting grease. Applications: plain and roller bearings, slideways and components operating at high temperatures.	2	L-XADGA 2	K 2N -10
Silis Grease HTL	Characteristics: yellow-brown, smooth-textured bentone grease. Non-melting grease. Applications: slow speed rolling bearings, roller ways of continuous casting plants, cooling plates where good pumpability and absence of carbon residues are requested.	1	L-XAEGA 1	K 1N -10
Grease PHT	Characteristics: polyurea grease with EP characteristics and beige colored. Excellent anticorrosive properties and water washout resistance. Applications: plain and roller bearings, industrial applications at very high temperatures (peaks up to +200°C). Steel plants thorough central lubrication system of continuous casting and rolling mills.	1.5	L-XBEHB 1.5	KP 1.5P -20
Grease HTX-SIL	Characteristics: translucent silicone grease. Excellent adhesion and water washout resistance. Applications: bearings, slideways and components operating at low speed and at very high temperatures. Pneumatic circuits, "O" rings and rubber seals assembly, for applications in presence of water, chemical agents, oils and gases.	3.5	L-XDGAA 3.5	KSI 3.5S -40
GR VN	Characteristics: light brown grease, paraffin-wax based. Applications: launching and slipping of ships.			
Grease NS	Characteristics: pale-yellow and smooth-textured grease, vegetable based and with inorganic thickener. Applications: valves and controls used in the oil and gas industries.	4	L-XABBA 4	



NLGI greases consistency (NLGI: National Lubricating Grease Institute)

NLGI Grade	Worked Penetration at 25°C (1/10 mm)	Appearance
000	445-475	Very fluid
00	400-430	Fluid
0	355-385	Semi fluid
1	310-340	Very soft
2	265-295	Soft
3	220-250	Semi soft
4	175-205	Semi hard
5	130-160	Hard
6	85-115	Very hard
7	< 70	Solid



Main characteristics of greases

Product	Base oil viscosity at 40°C, cSt	Thickener	NLGI Grade	Range of use, °C	Peaks, °C
Grease CC	100	Anhydrous Calcium	2; 3; 4	-20 / +80	
Eco Grease	36	Anhydrous Calcium	0; 2	-30 / +80	
Eco Grease Plus	220	Anhydrous Calcium	2	-35 / +120	
Grease PV	100	Anhydrous Calcium	2	-20 / +100	+ 110
Autol TOP 2000	850	Anhydrous Calcium	2	-30 / +100	+ 125
Grease NG	100	Anhydrous Calcium	3	-20 / +100	
Grease LP	160	Lithium/Calcium	0; 1; 2	-20 / +120	
SP GR MU 00	32	Lithium	00	-20 / +120	
Grease MU	100	Lithium	1; 2; 3	-20 / +120	
Grease MU EP	160	Lithium	00; 0; 1; 2; 3	-20 / +120	
Grease SM	160	Lithium	2	-20 / +120	
Grease Lito 475	220	Lithium	2	-20 / +120	
Grease SLL	150	Lithium	00	-30 / +120	
Autol Fliessfett ZSA	45	Lithium	00/000	-50 / +120	
Sagus 60	500	Lithium	0/00	-10 / +120	
Grease CT 350 EP	170	Lithium	3	-20 / +120	
Grease LC	200	Lithium complex	1; 2	-20 / +140	
Grease LCX 2/32	32	Lithium complex	2	-50 / +140	+ 150
Grease LCX 2/100	100	Lithium complex	2	-40 / +160	+ 170
Grease LCX 1/220; 2/220	220	Lithium complex	1; 2	-40 / +160	+ 170
Grease LCX 1,5/460	460	Lithium complex	15	-40 / +180	+ 190
Grease MSX 2/460	460	Lithium complex	2	-40 / +180	+ 190
Grease AC	170	Aluminium complex	1; 2	-20 / +140	
Grease Sagus AC 460	460	Aluminium complex	00	-10 / +140	
Grease NF	450	Bentone	2	-10 / +140	
Silis Grease HTL 1	650	Bentone	1	-10 / +140	
Grease PHT	460	Polyurea	15	-20 / +160	+ 200
Grease HTX-SIL	700	Silica gel	35	-40/+200	
Grease NS	245	Silica gel	4	-10 / +80	

Greases

Food grade greases



Product	Description	NLGI Grade	Classifications
Rubus TF	Characteristics: EP aluminium complex thickened greases based on pharmaceutical white oil, with PTFE additive. White coloured. Applications: plain and rolling bearings, loaded bearings of conveyors belts, chains, joints, gaskets, seals, gears and gearboxes.	000; 00; 0; 1; 2	NSF H1 Halal Kosher
Rubus Universal	Characteristics: multipurpose EP aluminium complex thickened greases with synthetic base oil. White coloured. Applications: plain and rolling bearings, loaded bearings of conveyors belts, chains, joints, gaskets, seals, gears and gearboxes operating in a wide range operating temperatures, in presence of water and steam.	000; 00; 0; 1; 2	NSF H1 Halal Kosher
Rubus MP	Characteristics: inorganic thickened greases based on pharmaceutical white oil. Transparent, odourless and colourless. Applications: conveyor belts, not loaded bearings and components operating in bakery and bottling industry, olive mills and wine-making companies. Centralized lubrication systems (NLGI 00).	00; 2	NSF H1 Halal Kosher
Rubus CONTACT	Characteristics: inorganic thickened grease based on pharmaceutical white oil. Transparent, odourless and colourless. Usable in direct contact with the food. Applications: release agent for grills and oven dishes for bakery products, cakes and pasta. Lubrication of knives and cutting boards for fruit, vegetables and meat. Suspended chains and conveyor belts.	2	NSF H1 NSF 3H Halal Kosher
Rubus SIL 3	Characteristics: inorganic thickened silicon grease, colourless and opaque. Applications: taps, valves, fittings in plastic materials and rubber, o-ring, domestic taps, expansion valves exposed to high or low temperature, pumps for potable water.	3	NSF H1 Halal Kosher
Rubus PFPE	Characteristics: EP fully synthetic, PTFE thickened grease based on PFPE. White coloured and chemically inert. Applications: bearings, gears, slideways and chains operating at very high temperature (up to 270°C) also with high loads. Lubrication in aggressive environments in presence of reactive chemicals, gases, strong acids and bases, halogens, alkaline baths, solvents and aggressive agents. Rubber and plastic materials.	2	NSF H1 Halal Kosher
Rubus CX	Characteristics: EP calcium complex thickened grease based on pharmaceutical white oil, beige coloured. Applications: bearings, open gears and components heavily loaded, subjected to vibrations and shocks and in dusty environments (rotating mechanisms of granulating presses, of mills and pellet mills for processing flours and animal food). Chains and components operating in aqueous or semi-immersed environments.	1.5	NSF H1 Halal Kosher
Rubus CSX	Characteristics: EP calcium sulphionate complex thickened grease based on pharmaceutical white oil, light brown coloured. Applications: bearings, open gears and components heavily loaded and subjected to vibrations and shocks. Chains and components operating at high and low temperatures, in aqueous or semi-immersed environments (machineries of water bottling, in fisheries and agri-food industries). Fan bearings.	2	NSF H1 Halal Kosher

Main characteristics of food grade greases

Product	Base oil viscosity, at 40°C, cSt	Thickener	NLGI Grade	Range of use, °C	Peaks, °C
Rubus Universal 000	350	Aluminium complex	000	-40/ +130	
Rubus Universal 00	350	Aluminium complex	00	-40/ +130	
Rubus Universal 0	350	Aluminium complex	0	-40/ +130	
Rubus Universal 1	350	Aluminium complex	1	-40/ +140	
Rubus Universal 2	350	Aluminium complex	2	-40/ +140	
Rubus TF 000	180	Aluminium complex	000	-15/ +110	
Rubus TF 00	180	Aluminium complex	00	-15/ +110	
Rubus TF 0	180	Aluminium complex	0	-15/ +110	
Rubus TF 1	180	Aluminium complex	1	-15/ +120	
Rubus TF 2	180	Aluminium complex	2	-15/ +120	
Rubus MP 00	70	Silica gel	0	-25/ +100	
Rubus MP 2	70	Silica gel	2	-20/ +120	
Rubus CX 1,5	190	Calcium complex	1.5	-20/ +140	+150
Rubus CSX 2	220	Calcium sulphionate complex	2	-25/ +140	+180
Rubus SIL 3	700	Silica gel	3	-50/ +220	
Rubus PFPE 2	240	PTFE	2	-35/ +250	+270
Rubus Contact 2	100	Silica gel	2	-20/ +120	







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