



TotalEnergies Lubrificants: our commitments

■ INCREASING YOUR PRODUCTIVITY

Our teams are committed to helping you get the most out of your production infrastructure and assisting you in the local and international expansion of your business.

■ TARGETED PRODUCTS

Every industry has its own production constraints. Thanks to our knowledge of industrial processes, our products are ideally tailored to your environment. TotalEnergies produces oils, greases and special products for every sector of industry: chemicals, energy, steel and metal manufacturing, automotive and systems manufacturing, building materials, timber, pulp and paper, agri-food, and textiles.

■ INNOVATIVE PRODUCTS

Innovation is a priority at TotalEnergies. We operate several research & development facilities that bring together tribology specialists and chemical and mechanical engineers. Our close ties with manufacturers allow us to formulate and test tomorrow's products to optimize the efficiency and uptime of your industrial equipment.

■ SAFE, RESPECTFUL PRODUCTS

We are committed to safety, health and respect for the environment. When designing new products, our R&D teams follow specifications that reduce toxicity risks and VOC emissions, while improving product biodegradability and making products easier to recycle and eliminate.

■ SERVICES WITH SIGNIFICANT ADDED VALUE

Personalized recommendations, streamlining of inventories, organization of maintenance and lubrication regimes, analysis of fluids in service and monitoring of results, personnel training: we offer a comprehensive range of services to make your installations optimally productive.

■ LOCAL SALES TEAMS AND RESPONSIVE LOGISTICS

The closer we are to our customers, the better we can understand their needs. With a highly integrated structure including our own production plants and an ultra-modern logistics hub, we can guarantee rapid deliveries.



Lubrication Solutions for Industry

Contents



1

General Greasing

Hydraulic systems	6
▶ HM hydraulic fluids: for high temperatures and pressures	
▶ HV hydraulic fluids: for low temperatures	
▶ Fire-resistant hydraulic fluids	
▶ Biodegradable hydraulic fluids	
▶ Hydraulic fluids made from re-refined base oils	
▶ Additives	
Gears	10
▶ Mineral oils	
▶ Synthetic oils	
▶ Special oils	
Compressors	14
▶ Air compressors	
▶ Refrigerating compressors	
▶ Gas compressors	
▶ Vacuum pumps	
Turbines	17
Hypercompressors	19

Motor oils	20
▶ Gas engines	
▶ Diesel engines for emergency generators	
Circulating oils	22
▶ Circulating oils	
▶ Circulating oils for paper machinery	
Special applications	24
▶ Oils for high-temperature chains	
▶ Oil for gasometers	
▶ Oils for steam-driven cylinder engines	
▶ Oil for mechanical shaft seals	
Heat transfer fluids	26
Process oils	27
▶ White oils and petroleum jellies	
▶ Vegetable oils for the agri-food industry	
▶ Process oils	
Insulating oils	29
Pneumatic tools	30
Solvents & detergents	31
▶ Grease solvents	
▶ Detergents	
Antifreezes & coolants	32

2

Greases

Lithium/Calcium	34
Lithium complex	37
Aluminium complex	39
Polyurea	41
Calcium sulfonate complex	42
▶ Mineral greases	
▶ Synthetic greases	
▶ Specialties	
▶ Food industry	
Calcium	46
▶ Calcium soap greases	
▶ Calcium complex soap greases	
Special-purpose greases	47

Contents



3

Metalworking

Innovative fluid technology	49
Aqueous cutting fluids	51
Whole cutting oils	53
Circulating oils	56
Quenching oils	58
EDM fluids	59
Post-treatment additives	60
Protective oils	61
Machine-tool lubrication	62

4

Nevastane

Oils	64
Greases	65
Special-purpose products	66
Spray	67

5

Lubrication for Open Gear Trains

Extreme-pressure greases	69
High-viscosity transparent oils	71
High-viscosity compounds supplemented with white solid particles	72
Cleaning	72

6

Sprays

Optimization of lubrication operations	74
Food industry and related activities	75



7

Textile

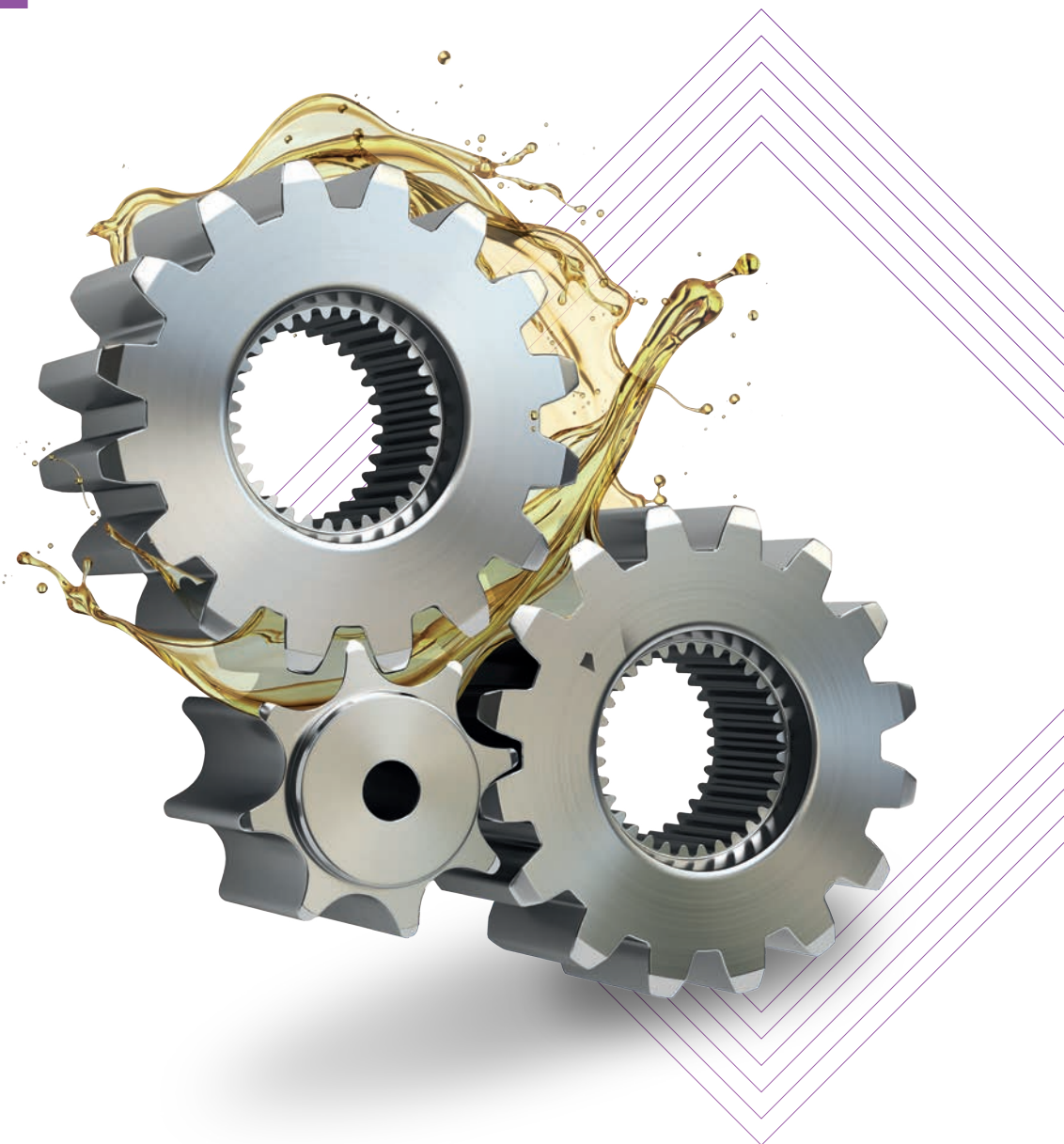
8

Services

Fluid management	78
LubAnac	79
Automatic lubrication systems	79
Lubrication plans/audits	79
Technical training in lubrication	80
Environment and safety	80
Customer Support	80

General Greasing

Hydraulic systems	6
Gears	10
Compressors	14
Turbines	17
Hypercompressors	19
Motor oils	20
Circulating oils	22
Special applications	24
Heat transfer fluids	26
Process oils	27
Insulating oils	29
Pneumatic tools	30
Solvents & detergents	31
Antifreezes & coolants	32



1



1

GENERAL GREASE LUBRICATION Hydraulic systems

TotalEnergies hydraulic fluids meet the requirements of international standards and manufacturers' technical specifications. Our product lines correspond to the classifications in the ISO 6743-4 standard:

- ◆ HM class: **Azolla** line. Mineral fluids with good oxidation stability, protecting equipment against corrosion and wear.
- ◆ HV class: **Equivis** and **Hydroflo** lines. Fluids with HM class properties supplemented by a high viscosity index, allowing use at low temperatures.

- ◆ HETG, HEES classes: **Biohydran** line. Biodegradable fluids recommended for equipment operating outdoors, to minimize the environmental impact of accidental releases.

- ◆ HFA, HFC, HFD classes: **Hydransafe** line. Fluids specially developed to reduce the risk of fire spreading in the event of leakage.

Blue Concentrate: blue dye for hydraulic fluids and other mineral lubricants, allowing early detection of leaks. **Nevastane** hydraulic fluids are available in HM and HV classes.



HM hydraulic fluids: for high temperatures and pressures

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Azolla ZS	<ul style="list-style-type: none"> Hydraulic systems operating at high temperatures and pressures Bearings and various mechanisms 	<ul style="list-style-type: none"> Enhanced protection of equipment thanks to anti-wear and anti-corrosion properties Good thermal stability and resistance to oxidation, ensuring the fluid has a long service lifespan and preventing the formation of deposits Good filtrability, even in the presence of water 	10 – 150	<ul style="list-style-type: none"> ISO 11158 HM • DIN 51524-2 HLP Eaton I-286S, M-2950S Denison HF0, HF1, HF2
Azolla AF	<ul style="list-style-type: none"> Hydraulic systems that are particularly sensitive to the formation of deposits and/or operate at high temperatures and pressures Bearings and various mechanisms 	<ul style="list-style-type: none"> Ash-free additives prevent formation of deposits Very good anti-wear and thermal stability performance Very good filtrability in service, even in the presence of water Extended oil change intervals. TOST = 4.000 hours 	22 – 100	<ul style="list-style-type: none"> ISO 11158 HM • DIN 51524-2 HLP Eaton I-286S, M-2950S Denison HF0, HF1, HF2
Azolla DZF	<ul style="list-style-type: none"> All hydraulic systems, especially when water is unavoidable and blow-off is impossible Various mechanisms requiring extreme-pressure properties 	<ul style="list-style-type: none"> Excellent hydrolysis stability through ash-free additivation Detergent fluid to prevent formation of deposits in circuits Enhanced extreme-pressure properties 	10 – 68	<ul style="list-style-type: none"> ISO 11158 HM • ISO 12925 CKC DIN 51524-2 HLPD Müller Weingarten • MAN N698 HLPD
NSF Azolla AL	<ul style="list-style-type: none"> Hydraulic systems for aluminum, stainless steel or copper rolling lines 	<ul style="list-style-type: none"> Synthetic oil prevents staining on the rolled metal in the event of a hydraulic system leak Reduction in deposit formation Corrosion protection even in the presence of water 	15 – 46	<ul style="list-style-type: none"> NSF H1
Azolla ALS	<ul style="list-style-type: none"> Hydraulic systems for aluminum rolling lines 	<ul style="list-style-type: none"> The exceptionally high-quality synthetic oil prevents staining on the rolled metal and residues in the event of a hydraulic system leak No formation of deposits Excellent protection against wear and corrosion 	46	
Azolla VTR	<ul style="list-style-type: none"> Hydrokinetic transmission and coupling Specially designed for turbo transmissions, Voith Turbo transmissions 	<ul style="list-style-type: none"> Dispersant and detergent fluid that reduces deposits Very high load capacity (FZG> 12) and wear protection High thermal stability. Very low foaming 	32	<ul style="list-style-type: none"> ISO 6743-4 HM • DIN 51524 HLPD Voith Turbo • SNCF
NSF Nevastane AW	<ul style="list-style-type: none"> Hydraulic systems operating under severe conditions 	<ul style="list-style-type: none"> Very strong ability to protect equipment Extended equipment service life Good miscibility with mineral fluids 	22 – 68	<ul style="list-style-type: none"> NSF H1 • KOSHER • HALAL ISO 6743-4 HM • ISO 21469



1

GENERAL GREASE LUBRICATION Hydraulic systems



HV hydraulic fluids: for low temperatures

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Equivis ZS	• Hydraulic systems operating outdoors	<ul style="list-style-type: none"> • Extended oil change intervals due to very good thermal stability and oxidation resistance • Very good filtrability, even in the presence of water 	15 – 100	<ul style="list-style-type: none"> • ISO 11158 HV • DIN 51524-3 HVLP • Vickers • Cincinnati-Milacron P68, P69, P70
Equivis AF	• Hydraulic systems operating outdoors	<ul style="list-style-type: none"> • Extended oil change intervals • Enhanced shear stability 	32 – 68	<ul style="list-style-type: none"> • ISO 11158 HV • DIN 51524-3 HVLP
HIGH EFFICIENCY Equivis HE	<ul style="list-style-type: none"> • Hydraulic systems operating at high temperatures and pressures • Hydraulic systems operating outdoors 	<ul style="list-style-type: none"> • High efficiency: up to 5% energy savings • Extended oil change intervals due to excellent thermal stability and oxidation resistance • Excellent shear stability. Excellent filtrability 	32 46 68	<ul style="list-style-type: none"> • ISO 11158 HV • DIN 51524-3 HVLP • Denison HF0
Equivis XV	• Hydraulic systems operating at temperatures as low as -30°C	<ul style="list-style-type: none"> • Viscosity index > 250 for enhanced machinery protection, limiting cavitation phenomena in circuits during start-up phases and maintaining the thickness of the oil film when hot 	32 46	<ul style="list-style-type: none"> • ISO 11158 HV • ISO 6743-4HV
Equivis XLT	• Hydraulic systems operating at temperatures as low as -40°C	<ul style="list-style-type: none"> • Viscosity index of 350 for enhanced protection • Ash-free additives prevent formation of deposits • Very good filtrability, even in the presence of water • Extended fluid service life TOST = 4.000 hours 	15 – 32	<ul style="list-style-type: none"> • ISO 11158 HV • ISO 6743-4 HV
Equivis ZXL	<ul style="list-style-type: none"> • All types of hydraulic circuits • Mobile and industrial hydraulic systems 	<ul style="list-style-type: none"> • Exceptional abrasion protection • Very good thermal stability and protection against oxidation • Superior air separation capacity • Very good filtrability 	46	<ul style="list-style-type: none"> • ISO 6743-4 HV • ISO 11158 HV • DIN 51524-3 HVLP • Bosch Rexroth RE 90 245 • Parker Denison HF0, HF1, HF2
Equivis D	• Hydraulic systems with presence of water that cannot be removed	<ul style="list-style-type: none"> • The detergent characteristics ensure the oil can absorb large amounts of water while maintaining its properties • Very high viscosity index allowing a wide range of operating temperatures • High thermal stability extending fluid service life at high operating temperatures 	46	<ul style="list-style-type: none"> • ISO 6743-4 HVLPD
Hydroflo CT	• Hydraulic systems operating outdoors	<ul style="list-style-type: none"> • Enhanced equipment protection and performance • Extended oil change intervals • Blue staining to detect possible circuit leakages 	46	<ul style="list-style-type: none"> • DIN 51524-3 HVLP • Poclairn Hydraulics • Denison HF0, HF1, HF2
NSF Nevastane SH	• Hydraulic systems operating at low temperatures	<ul style="list-style-type: none"> • 100% synthetic hydraulic fluid • Excellent equipment protection • Extended oil change intervals 	32 – 100	<ul style="list-style-type: none"> • NSF H1 • KOSHER • HALAL • ISO 6743-4 HV • ISO 21469






1

GENERAL GREASE LUBRICATION Hydraulic systems



Fire-resistant hydraulic fluids

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Hydransafe HFA E3	• Water-soluble concentrate	• Hot presses and systems specifically designed for low-viscosity aqueous fluids • Operating temperatures: +5°C – +55°C	• Obtaining a stable non-flammable emulsion • Good filtrability • Good resistance to bacterial growth	34	• ISO 6743-4 HFAE • ISO 12922
Hydransafe HFA S5	• Synthetic water-soluble concentrate	• Hot presses and systems specifically designed for low-viscosity aqueous fluids • Operating temperatures: +5°C – +55°C	• Obtaining a stable non-flammable emulsion • Excellent filtrability • Increased resistance to bacterial growth	8	• ISO 6743-4 HFAS • ISO 12922
 Hydransafe HFA S7	• Synthetic water-soluble concentrate	• Hot presses and systems specifically designed for low-viscosity aqueous fluids • Operating temperatures: +5°C – +55°C	• A top-quality longwall fluid (fire-resistant hydraulic emulsion) • Offers increased stability in hard water • Biodegradable and non-toxic	2 – 50	• ISO 12922 • TRGS 611 • RAG norm 762011 • DIN ISO EN 4404-1 • Caterpillar (Bucyrus) EWN 8350 • Joy (Komatsu) requirements for 2% in water
Hydransafe HFC 146	• Water/glycol-based fire-resistant fluid	• Operating temperatures: +20°C – +60°C	• Nonflammable fluid containing a high proportion of water • Suitable for low temperatures	46	• ISO 12922 HFC • ISO 6743-4 HFC • Seventh Luxembourg report • Danieli • Müller Weingarten
 Hydransafe HFC-E	• Water/glycol-based fire-resistant fluid	• Hydraulic systems operating in conditions where there is increased risk of fire	• Excellent fire resistance properties thanks to its water-based formula • Biodegradable and non-toxic • Improved wear protection for pumps	46 68	• Seventh Luxembourg report • DIN ISO EN 4404-1 • ISO 12922 • DMT: spray ignition test corresponding to DIN EN ISO 15029-2:2007-2 • RAG N 762010 standard • Approved by GHH • Suitable for equipment from Sandvik, Epiroc, Joy, Caterpillar, etc.
 Hydransafe HFDU	• Ester-based fire resistant fluid	• Recommended in case of accidental discharges to the environment • Operating temperature: -10°C – +70°C continuously, +120°C at peak	• Excellent fire resistance • Maximum biodegradability (OECD 301B) • Excellent anti-corrosion properties • Miscible with mineral oils	46 68	• ISO 6743-4 HFDU • ISO 12922 • Factory Mutual
Hydransafe HFDU LC 168	• Ester-based fire resistant fluid	• Operating temperature: -10°C – +70°C continuously, +120°C at peak	• Excellent fire resistance • Anti-wear properties	68	• ISO 6743-4 HFDU • ISO 12922 • ISO 15029-1 • Seventh Luxembourg report
Hydransafe FR EHC	• Ester/phosphate-based fire-resistant fluid	• Operating temperature: -10°C – +70°C continuously, +150°C at peak • Designed for electrohydraulic control systems	• Excellent fire resistance • No deposits • Strong protection against corrosion	45	• ISO 6743-4 HFDR • ISO 12922 HFDR • ALSTOM • General Electric • SIEMENS



*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Hydraulic systems

Biodegradable hydraulic fluids

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
 Biohydran TMP	<ul style="list-style-type: none"> • Biodegradable • Synthetic esters 	<ul style="list-style-type: none"> • Hydraulic systems operating outdoors • Optimal operating temperatures: -20°C – +80°C 	<ul style="list-style-type: none"> • Excellent protection against wear and corrosion • Protection and efficacy of equipment • Miscible with mineral oils 	32 – 100	<ul style="list-style-type: none"> • ISO 15380 HEES • European Ecolabel • Swedish Standard SS 15 54 34 
 Biohydran SE	<ul style="list-style-type: none"> • Biodegradable • Saturated synthetic esters 	<ul style="list-style-type: none"> • Hydraulic systems operating outdoors • Operating temperatures in excess of +80°C 	<ul style="list-style-type: none"> • Extended oil change intervals thanks to enhanced thermal stability • Excellent compatibility with elastomers 	32 – 68	<ul style="list-style-type: none"> • ISO 15380 HEES • European Ecolabel • Swedish Standard SS 15 54 34 • Denison HF1, HF2, HF6 • Sauer Danfoss 

Hydraulic fluids made from re-refined base oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Azolla ECO2	<ul style="list-style-type: none"> • Re-refined base oils with premium-quality additives 	<ul style="list-style-type: none"> • All fixed or mobile hydraulic systems • Suitable for high-pressure hydraulic systems 	<ul style="list-style-type: none"> • Good thermal stability and oxidation resistance thanks to the quality of the re-refined oils • Strong anti-wear properties • Good resistance to hydrolysis • Low pour point • Highly compatible with seals 	46	<ul style="list-style-type: none"> • AFNOR NF E 48-603 HM • ISO 6743/4 and ISO 11158 HM • DIN 51524-2 HLP
Equivis ECO2	<ul style="list-style-type: none"> • Re-refined base oils with premium-quality additives 	<ul style="list-style-type: none"> • All fixed or mobile hydraulic systems • Suitable for hydraulic systems operating at high temperatures and pressures • Suitable for lubricating outdoor machinery 	<ul style="list-style-type: none"> • Good thermal stability and oxidation resistance thanks to the quality of the re-refined oils • Strong anti-wear properties • Good mechanical stability in service with excellent shear strength • Good resistance to hydrolysis • Low pour point • Highly compatible with seals 	46	<ul style="list-style-type: none"> • AFNOR NF E 48-603 HV • ISO 6743/4 and ISO 11158 HV • DIN 51524-3 HVLP

Additives

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*
Blue Concentrate	<ul style="list-style-type: none"> • Blue dye 	<ul style="list-style-type: none"> • Dose varies according to requirements, from 0.2% to 1% in hydraulic oil 	<ul style="list-style-type: none"> • Can be used in all hydraulic systems • Adding this dye to a mineral oil gives it a blue color 	30
Azolla NET HC	<ul style="list-style-type: none"> • Synthetic detergent 	<ul style="list-style-type: none"> • Apply to 5% of oil circuits to be cleaned 	<ul style="list-style-type: none"> • High-quality detergent product with effective cleaning power 	23.6
Cleaner F & V	<ul style="list-style-type: none"> • Detergent additive 	<ul style="list-style-type: none"> • Cleaning agent for all types of systems: hydraulic systems, gear trains, paper machinery, heat transfer systems 	<ul style="list-style-type: none"> • High detergent and dispersant capacity • Recommended for removal of varnish deposits 	52 (F) 173 (V)

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Gears


Carter, Kassilla and **Nevastane** oils are designed for gear train lubrication. There are many factors to take into account when choosing a gearbox lubricant:

- ◆ Type of gearbox: dimensions, form of gear teeth, slip characteristics, reduction ratio, open or enclosed housing.
- ◆ Operating conditions: depending on levels of load, vibration and shock, the choice of lubricant is determined by anti-wear and EP (Extreme Pressure) properties.
- ◆ Service temperature of oil: very low, moderate between +20°C and +80°C, warm at over +80°C, and extreme in excess of +120°C.

- ◆ Possible impact of the gearbox environment on the lubricant: some oils have enhanced anticorrosion properties to prevent corrosion and reduced fluid service life caused by moisture, dust or other agents.
- ◆ Possible impact of the lubricant on the gearbox environment in the event of leakage: biodegradability, suitability for incidental food contact and non-staining properties are required.
- ◆ Maintenance conditions: a synthetic fluid with extended oil change intervals and good operating safety for significant savings in maintenance costs.



Mineral oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Carter EP	• Mineral oil	• Industrial gear trains, bearings subjected to heavy loads and high temperatures	• Extended oil change intervals • Good protection against micropitting	68 – 1000	• ISO 12925-1 CKD • DIN 51517-3 CLP • AGMA 9005-E02 EP • U. S. Steel 224 • Flender
 Nevastane EP	• White oil	• Gearboxes, gear pumps, chains and conveyor belts	• Superior protection under high loads • Suitable for many applications	100 – 1000	• NSF H1 • KOSHER • HALAL • ISO 6743-6 CKD • ISO 21469
Carter XEP	• Mineral oil	• Gear trains subjected to heavy loads, high temperatures and harsh environments	• Extended oil change intervals due to very good thermal stability • Enhanced anticorrosion protection • Very good protection of bearings • Excellent protection of gear teeth against micropitting	150 – 680	• ISO 12925-1 CKD • DIN 51517-3 CLP • AGMA 9005-E02 EP • U. S. Steel 224 • FAG • Flender
Carter HD	• Next-generation high-performance mineral oil for gear trains	• Ultra-heavy duty gear trains	• Excellent performance at high pressure • Excellent oxidation resistance and corrosion protection • Reduced maintenance costs and extended service life of installation	220 320	• DIN 51517 Part 3 - CLP • ISO 12925-1 catégorie CKD • AGMA 9005-F16 AS • SEB 181226 • JIS K 2219:2006 (Class 2)
Kassilla GMP	• Mineral oil	• Industrial gear trains subjected to very high load and repeated shocks • Suitable for harsh conditions: cement plants, iron and steel, mining, crushing	• Very good thermal stability • Enhanced corrosion and micropitting protection • Contains graphite and molybdenum disulfide	150 – 1000	• ISO 12925-1 CKD • DIN 51517-3 CLP • AGMA 9005-E02 EP




1

GENERAL GREASE LUBRICATION Gears



Synthetic oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Carter SH	• Synthetic oil (PAO)	<ul style="list-style-type: none"> • Gearboxes subjected to very high loads, high temperatures and harsh environments • Wind turbine gearboxes 	<ul style="list-style-type: none"> • Excellent protection against corrosion, wear and micropitting • Extended service life of oil due to excellent thermal stability • Can be used outdoors thanks to a very low pour point 	150 – 1000	<ul style="list-style-type: none"> • ISO 12925-1 CKD • DIN 51517-3 CLP • Flender • FAG • SKF
Carter SHX	• Synthetic oil (PAO)	<ul style="list-style-type: none"> • Closed industrial gear trains • Conical and helical gear trains • Heavy-duty bearings and gears 	<ul style="list-style-type: none"> • Very high protection against wear from micropitting • Very high natural viscosity index • Very low pour point • Excellent oxidation resistance 	150 220 320	<ul style="list-style-type: none"> • DIN 51517 part 3 - CLP • ISO 12925-1 category CKD-CKSMP • AGMA 9005 - F16 oils anti-friction/anti-wear (EP)
Carter WT	• Synthetic oil (PAO)	<ul style="list-style-type: none"> • Wind turbine gears, with potentially a 10-year span between oil changes under normal operating conditions • Suitable for any kind of drive technology, both onshore and offshore, regardless of power 	<ul style="list-style-type: none"> • Superior oxidation resistance • Superior protection of gears against micropitting and corrosion • Reduced friction coefficient, contributing to higher power • Neutral effect on seals, internal coatings and metals containing copper • High stability in the presence of water • Excellent filtrability • Resistance to very high temperatures without formation of deposits • Naturally high viscosity index providing long-term viscosity stability • Extremely low pour point, allowing for very low operating temperatures 	320	<ul style="list-style-type: none"> • DIN 51517 part 3 - CLP • ISO 12925-1 category CKD-CKSMP • AGMA 9005 - F16 AS • CEI 61400-4
 Carter Bio	• Synthetic ester oil	<ul style="list-style-type: none"> • Gearboxes at risk of accidental discharges to the environment 	<ul style="list-style-type: none"> • Biodegradable product • Excellent anti-wear and anti-corrosion properties and characteristics under extreme pressure. Oxidation stability 	68 – 460	Equivalence: • ISO 12925-1 CKD • DIN 51517-3 CLP EAL (Environmentally Acceptable Lubricant)



1

GENERAL GREASE LUBRICATION Gears



Synthetic oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Carter SY	• Synthetic oil (PAG)	• Lubrication of worm and wheel gears under the most severe operating conditions (heavy load, shocks, extreme temperatures, corrosive atmosphere)	<ul style="list-style-type: none"> • Very high viscosity index: mechanical shear stability • Low friction coefficient: for better protection of non-ferrous components, such as the bronze crown gear in parallel gear trains, with energy savings between 5 and 10% compared to mineral oils • Excellent thermal stability: extended oil service life • Excellent EP and anti-wear properties • Very good static and dynamic anticorrosion properties • Excellent anti-foaming properties in service 	150 220 320 460 680	<ul style="list-style-type: none"> • DIN 51515 deel 3 - CLP • ISO 6743-6 category CKS/CKT • David Brown, CMD
Carter SG	• Synthetic oil (PAG)	<ul style="list-style-type: none"> • High-performance synthetic lubricant for gearboxes with parallel, planet and worm and wheel gears • Very high EP performance, superior friction performance • Not miscible with mineral oils or certain synthetic lubricants 	<ul style="list-style-type: none"> • High performance: reduces operating temperatures thanks to a reduced friction coefficient and increases energy efficiency • Excellent shear stability and very high viscosity index • Very high thermal and oxidation stability 	100 – 1000	Equivalence: • ISO 12925-1 CKT • DIN 51517-3 CLP PG
NSF Nevastane XSH	• Synthetic oil (PAO)	<ul style="list-style-type: none"> • Harsh temperature conditions and high loads • Gears, slides, plain bearings and rolling bearings 	<ul style="list-style-type: none"> • Excellent equipment protection level • Extended oil change intervals. Extended equipment service lifespan 	150 – 460	<ul style="list-style-type: none"> • NSF H1 • KOSHER • HALAL • ISO 6743-6 CKD • ISO 21469
NSF Nevastane SY	• Synthetic oil (PAG)	<ul style="list-style-type: none"> • Harsh temperature conditions and high loads • Oven chains and conveyor belts, bottling equipment, worm and wheel • Not miscible with mineral oils or certain synthetic lubricants 	<ul style="list-style-type: none"> • Enhanced properties under extreme pressure • Very good thermal stability • Corrosion protection 	220 320 460	• NSF H1



1

GENERAL GREASE LUBRICATION Gears



Special oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Carter EP 1500, 2200, 3000	• Semi-synthetic oil	<ul style="list-style-type: none"> • Slow gears • For kiln girth gears and crusher backing in particular 	<ul style="list-style-type: none"> • High load capacity thanks to excellent anti-wear properties and performance under extreme pressure • Impact and corrosion protection 	1500 2200 3000	<ul style="list-style-type: none"> • ISO 12925 CKC • DIN 51517-3 CLP (grade 1500) • AGMA 9005-E2, NF-F19-809
Carter ALS	• Synthetic oil	<ul style="list-style-type: none"> • Enclosed gears in aluminum rolling lines • Cylindrical gears, bearings and couplings, worm and wheel gearboxes 	<ul style="list-style-type: none"> • Does not stain aluminum • Excellent protection of lubricated parts • Corrosion resistance even in water 	220 460	
Carter OGL 600 M	• High-viscosity, high-performance semi-synthetic oil	<ul style="list-style-type: none"> • Lubrication of bearings and open casings • Particularly suitable for plain bearings and the open gears at sugar cane mills, thanks to its excellent resistance to extreme loads • Easily pumpable with automated spraying equipment 	<ul style="list-style-type: none"> • Excellent behavior in the presence of water and sugar cane juice • Very good shear strength • Excellent extreme-pressure and anti-wear properties • Very good protection against corrosion and rust • Minor variation in viscosity based on temperature • Excellent thermal stability • Excellent adhesiveness to metal surfaces 	16000	• ISO 6743-6 L-CKJ
Carter OGL 600 SM	• Semi-synthetic oil with high viscosity	<ul style="list-style-type: none"> • Lubrication of open or semi-open bearings and gears • Suitable for heavy-load applications, mainly sugar cane mills • Contains no solvents or bituminous components • Suitable for centralized lubrication systems 	<ul style="list-style-type: none"> • Excellent pumpability • Lower fuel consumption • Excellent extreme-pressure and anti-wear properties • Very good protection against corrosion and rust • Minor variation in viscosity based on temperature • Excellent thermal stability • Excellent adhesion to metal surfaces 	16000	• ISO 6743-6 L-CKJ
Carter OGL 1000 M	• Very high-viscosity semi-synthetic oil	<ul style="list-style-type: none"> • Lubrication for open gears • Resistant to very heavy loads and particularly suited for open gears and bearings on sugar cane crushers • Contains no solvents or bituminous compounds • Transparent 	<ul style="list-style-type: none"> • Easily pumpable using automatic spraying equipment • Excellent behavior in the presence of water and sugar cane juice • Very high shear stability • Excellent extreme-pressure and anti-wear properties 	25000	• ISO 6743-6 L-CKJ

*Typical kinematic viscosity at 40°C in mm²/s



1


GENERAL GREASE LUBRICATION Compressors



The **Dacnis** line is formulated according to manufacturers' requirements to ensure air compressors operate at optimal efficiency.

◆ Oil change intervals ranging from 2000 to 8000 hours under normal operating conditions.

- ◆ Protection against wear and corrosion.
- ◆ No carbon residue even at high temperatures.
- ◆ Efficient oil/air and oil/condensate separation.

Air compressors					
PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Dacnis	• Mineral oil	• Rotary and reciprocating air compressors	• Oil change interval of 2000 hours	32 – 150	Grades 32 – 68: • ISO 6743-3 DAH • ISO DP 6521 Grades 100 and 150: • ISO 6743-3 DAB • DIN 51 506 VDL • Bauer • CompAir • Dresser-Rand • Sauer & Sohn • Sulzer Burckhardt and more
Dacnis LD	• Mineral oil, hydrocracked	• Lubricated screw air compressors	• Oil change interval of 4000 hours • Low pour point	32 – 68	• ISO 6743-3 DAJ • ISO DP 6521 • DIN 51 506 VDL • Atlas Copco • CompAir • Hydrovane • Dresser-Rand and more
Dacnis SH	• Synthetic oil (PAO)	• Rotary screw air compressors	• Oil change interval of 8000 hours • Very low pour point	32 – 100	• ISO 6743-3 DAJ • ISO DP 6521 • Atlas Copco • Hydrovane • CompAir • Dresser-Rand and more
Dacnis SE	• Synthetic ester oil	• High-pressure reciprocating and rotary air compressors and turbochargers	• High thermal stability • Low pour point	46 – 100	• ISO 6743-3 DAJ • DIN 51 506 VDL • Atlas Copco • Bauer • CompAir • Dresser-Rand • Sauer & Sohn • Tanabe and more
 Nevastane SH	• Synthetic oil (PAO)	• Air compressors • Suitable for harsh environments in the agri-food industries	• Very high level of equipment protection, even in severe conditions	32 – 100	• NSF H1 • KOSHER • HALAL • ISO 6743-6 CKC • ISO 6743-4 HV • ISO 21469

*Typical kinematic viscosity at 40°C in mm²/s

1

GENERAL GREASE LUBRICATION Compressors

Depending on the type of refrigerant, **Lunaria** and **Planetelf** fluids are designed to handle a wide variety of operating conditions.

Whatever the application, they offer strong lubricating capacity and:

- ◆ Good anti-wear and anti-foaming properties.
- ◆ Minimal formation of deposits.
- ◆ Excellent thermal and chemical stability.
- ◆ Excellent lubricant return as far as the compressor.



Refrigerating compressors

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Lunaria FR	• Mineral oil, naphthenic	• Refrigerated compressors using CFC, HCFC and NH ₃ refrigerants	• Evaporator temperature as low as -15°C	32 – 100	• ISO 6743-3 DRA • APV • Bock • Bitzer • Gram • Carrier • Grasso • Howden • J & E Hall • Sabroe • York
Lunaria NH	• Mineral oil, hydrocracked	• Refrigerated compressors using ammonia NH ₃ gas	• Evaporator temperature as low as -30°C	46 68	• ISO 6743-3 DRA • APV • Gram • Bock • J & E Hall • Grasso • Howden • Sabroe • York
NSF Lunaria SH	• Synthetic oil (PAO)	• Refrigerated compressors using ammonia NH ₃ gas	• Evaporator temperature as low as -50°C	46 68	• NSF H1 • ISO 6743-3 DRA • APV • Gram • Bock • J & E Hall • Grasso • Howden • Sabroe • York
Lunaria SK	• Synthetic oil (alkylbenzene)	• Refrigerated compressors using CFC or HCFC refrigerants	• Evaporator temperature as low as -60°C depending on grades and gases used	55 – 150	• ISO 6743-3 DRE • APV • Bitzer • Bock • Sabroe • York • RefComp
Planetelf ACD	• Synthetic oil (POE)	• Refrigerated compressors using HFC coolants	• Evaporator temperature as low as -60°C	32 – 220	• ISO 6743-3 DRD • Aerzen • Bock • Frascold • Grasso • Howden • Sabroe • Sulzer • York
Planetelf PAG K40	• Synthetic oil (PAG)	• Automotive air conditioning compressors using R-134a and/or R-1234yf as refrigerants	• Good compatibility and miscibility properties with R-134a and/or R-1234yf • Specially packaged to reduce water uptake	40	• Sanden, Valeo, Mahle

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Compressors

Dacnis LPG and **Orites** oils are used to lubricate gas compressors and super-charger cylinders.

Dacnis LPG meets the requirements for hydrocarbon gas compression, including for refrigeration applications.

Orites TN 32 is a "Turbine-grade" mineral oil, suitable for lubricating synthetic ammonia turbo-compressors.

These products, formulated from white oils and synthetic PAG oils, provide:

- ◆ Excellent solvent power.
- ◆ Antifreeze protection.
- ◆ Ensures a long lifespan for linings.
- ◆ Works very well under pressure.
- ◆ Very high level of pumpability.



Gas compressors

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Dacnis LPG 150	• Synthetic oil (PAG)	• Hydrocarbon gas compressors	• Resistant to dilution by hydrocarbon gases • Excellent chemical stability	150	• ISO 6743-3: DGC • Sulzer-Burckhardt • Howden • Aerzen
Orites TN 32	• Mineral oil	• Turbo-compressors using synthetic ammonia gas	• Excellent oxidation resistance and de-aeration properties • Chemically inert to ammonia, which prevents deposits • Compatible with elastomers	32, 46	• Dresser-Rand • Thermodyn • Creusot-Loire • Rateau
Orites DS 125	• Synthetic oil (PAG)	• Gas compressor cylinders	• Good resistance to dilution by hydrocarbon gases	125	• ISO 6743-3: DGC • Burckhardt Compression

PV 100 oils are designed for lubricating reciprocating and rotary vacuum pumps. They are guaranteed to perform over time thanks to the fluid's properties.

- ◆ Lower fluid consumption due to low volatility.
- ◆ Provides ultimate pump vacuum, guaranteed by the lubricant's low saturation vapor pressure.

- ◆ Constant sealing thanks to the minimal variation in viscosity over the life of the oil.
- ◆ No formation of degradation product, thanks to excellent oxidation resistance.

Vacuum pumps

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
PV 100	• Mineral oil	• Vacuum Pump • Neutral gas suction	• Low saturation vapor pressure • Excellent oxidation resistance • High viscosity index	125	• ISO 6743-3 DVC
PV 100 Plus	• Mineral oil	• Vacuum Pump • Moist air suction	• Low saturation vapor pressure • Excellent oxidation resistance • High viscosity index • Suitable for pumping moist air	125	• ISO 6743-3 DVC
NSF PV SH 100	• Semi-synthetic oil	• Rotary and reciprocating vacuum pumps • Suction of acid or corrosive gases	• Suitable for incidental food contact	100	• NSF H1 • ISO 6743-3 DVD

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Turbines

Preslia oils are used to lubricate hydraulic, steam, gas and combined cycle turbines. Their formulation is the result of long experience and meets the most stringent specifications of manufacturers.

◆ Excellent oxidation resistance that allows for extended oil change intervals.

◆ Resistant to foaming, de-aeration and demulsibility, guaranteeing that equipment will operate smoothly.

◆ Includes a special anti-wear and extreme pressure additive allowing gears to withstand heavy loads.



PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Preslia	• Mineral oil	<ul style="list-style-type: none"> • Hydraulic turbines • Steam turbines • Gas turbines • Centrifugal compressors 	<ul style="list-style-type: none"> • Very good foaming, de-aeration, demulsibility properties • Excellent oxidation resistance 	32 – 100	<ul style="list-style-type: none"> • ISO 6743-5 THA/THE/TSA/TSE/TGA/TGB/TGE/TGSB • ISO 8068 (ISO VG 32 & 46) • ASTM D 4304 - type I & II • DIN 51515 Parts I & II • JIS K2213 type 2 w/add • China National Standard GB 11120-2011 L-TSA • ALSTOM HTGD 90 117 • ALSTOM HYDRO HTWT 600050 • GENERAL ELECTRIC GEK 27070/28143/46506/101941/32568/107395 • SIEMENS TLV 901304 & TLV 901305 • SIEMENS TURBO AB MAT 812101/02/06/07/08/09 • SIEMENS TURBOMACHINERY 1CW0047915 • SOLAR ES 9-224W Class II • ANSALDO TG02-0171 • SKODA, TURBINY PLZEN • FUJII ELECTRIC Steam turbine • TOSHIBA Steam turbine
Preslia GT	• Mineral oil, hydrocracked	<ul style="list-style-type: none"> • Steam turbines • Gas turbines • Combined cycle turbines 	<ul style="list-style-type: none"> • Very high oxidation resistance and enhanced anti-wear and extreme pressure properties • Extended oil change intervals 	32 46	<ul style="list-style-type: none"> • ISO 6743-5 TSA/TSE/TGA/TGB/TGE/TGSB/TGSE • ASTM D4304 Type I & II • DIN 51515 Parts I & II • ISO 8068 • JIS K-2213 Type 2 • China National Standard GB 11120-2011 L-TSA • ALSTOM HTGD 90117 • ANSALDO TG02-0171 • GENERAL ELECTRIC GEK 27070, 28143, 46506, 32568, 107395, 101941 • SIEMENS TLV 901304/05 • SIEMENS INDUSTRIAL TURBO AB MAT 812101/02/06/07/08/09 • SIEMENS TURBOMACHINERY 1CW0047915 • SOLAR ES 9-224 Class II • DOOSAN SKODA, TURBINY PLZEN • BAKER HUGHES ITN 52220.01/02/03/06
Preslia EVO	• Mineral oil, hydrocracked	<ul style="list-style-type: none"> • Oil for advanced turbines with very high resistance to varnish and deposit formation • Developed for use in modern steam and gas turbines, combined cycle turbines and turbochargers subject to high loads and severe thermal stresses • Suited to the harsh operating conditions of flexible turbines 	<ul style="list-style-type: none"> • Very high thermal stability • High resistance to undesirable formations of detritus caused by high temperature peaks • Formulated with innovative additives to prevent the formation of varnishes and deposits • Remarkable oxidation resistance due to high-quality base oil and antioxidants 	32 46	<ul style="list-style-type: none"> • ISO 8068 • DIN 51515 Parts 1 & 2 • ISO 6743-5 TSA/TSE/TGA/TGB/TGE/TGSB/TGSE • ASTM D 4304, type I/II/III • JIS K 2213 • GE GEK 2707, 46506, 28143, 101941, 32568, 107395 • SIEMENS TLV 9013 04 & 05 • ANSALDO TG02-0171 • SIEMENS Finspang MAT 812101/02/06/07/08/09 • MAN-ES TED 10000494596-Rev.03 • SOLAR ES9-224 Class II




*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Turbines



PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Preslia SE JET	• Synthetic ester oil	• Aeroderivative gas turbines	• Excellent resistance to high temperatures	25	• MIL-PRF-23699G - STD class • ROLLS ROYCE/ALLISON: Avon, RB211, Allison 501K, Olympus, Tyre, Spey • GENERAL ELECTRIC (LM 2500, LM 6000, LMS 100)
Preslia SE HTS	• Synthetic oil (ester)	• Aeroderivative gas turbines	• Increased thermal stability	25	• SAE AS5780 HPC • MIL-PRF-23699G Class HTS • ROLLS ROYCE: 501-KB7, 501-KB7S and 501-KB7C • GENERAL ELECTRIC
 Biopreslia HT	• Saturated synthetic esters	• Hydroelectric plants (turbines and hydraulic circuits)	<ul style="list-style-type: none"> • Resistance to oxidation • Very good foaming, de-aeration, demulsibility properties • Good compatibility with elastomers • Biodegradable 	22 – 100	  ecosolutions.totalenergies.com/en

*Typical kinematic viscosity at 40°C in mm²/s







1

GENERAL GREASE LUBRICATION Hypercompressors

Orites DS, TW and **EDA** products are formulated specifically to serve as hyper-compressor cylinder lubricants and comply with the main regulations currently in force for polymer production.



PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
 Orites DS 270	• Synthetic oil (PAG)	• Cylinders on ethylene compressors and hypercompressors, for the production of low-density polyethylene	• Excellent lubricity	270	<ul style="list-style-type: none"> • NSF H1 • ISO 6743-3; DGC • EU 2011/10/EG • Burckhardt Compression • Certification ISO 21469 for Orites TW 220
 Orites DS 270 X		• Cylinders on ethylene compressors and hypercompressors, for the production of low-density polyethylene and EVA	• Corrosion resistance		
 Orites TW 220	• Thickened white oil	• Cylinders on ethylene compressors and hypercompressors, for the production of low-density polyethylene	• Excellent lubricity	220	
 Orites TW 220 X		• Cylinders on ethylene compressors and hypercompressors, for the production of low-density polyethylene and EVA	• Corrosion resistance		
Orites EDA 220		<ul style="list-style-type: none"> • Hypercompressor cylinders • For the production of EDA 	• Excellent lubricity		

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Motor oils

Nateria lubricants are detergent oils for gas engines and compressor units operating with all types of fuel, from natural gas to highly corrosive landfill gas.

The **Nateria** formulation is the fruit of long experience and meets manufacturers' requirements to ensure maximum engine protection.

- ◆ Extended oil change intervals due to significant reserve alkalinity. Thermal stability, oxidation and nitration resistance.
- ◆ Significant anti-wear and anti-corrosion performance.
- ◆ Detergent and dispersant capabilities for reducing deposit formation.



Gas engines					
PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	SAE GRADE	SPECIFICATIONS
Nateria MH 40	• Mineral oil	• Natural gas engines can be used in cogeneration	<ul style="list-style-type: none"> • Ash content < 0.5% • TBN: 5.5 • Long-life oil • Compatible with catalytic converters 	40	<ul style="list-style-type: none"> • CATERPILLAR ENERGY SOLUTIONS, 2105/14, sulfated ash content max. 0.5% by weight, CG132, CG170, CG260 engines • DEUTZ Technical bulletin 0199-99-01213/1 • GE-JENBACHER Engine types 2 and 3: Gas type A and catalytic converter, engine type 4 B: Gas type A, B, C and catalytic converter, engine types 6 C & E: Gas type A, B, C and catalytic converter • MAN M3271-2, stationary engines, natural gas • MTU series 400BR, natural gas • MTU series 4000, natural gas, L32/33 - L61/62/63 • MWM 2105/14, 2105/14, sulfated ash content max. 0.5% by weight, 616, 620, 632 engines • WÄRTSILÄ, W25SG, W28SG, W180SG, W220SG engines <p>Nateria MH 40 also meets the technical specifications of CATERPILLAR and WAUKESHA, among other manufacturers</p>
Nateria MP 40	• Mineral oil	• Natural gas engines operating under severe conditions	<ul style="list-style-type: none"> • Ash content < 0.5% • TBN: 4.6 • Very long-life oil • High performance in severe conditions 	40	<ul style="list-style-type: none"> • AGROGEN all biogas engines, BGA series • CATERPILLAR ENERGY SOLUTIONS, 2105/14, sulfated ash content max. 0.5% by weight, CG132, CG170, CG260 engines • DEUTZ technical bulletin 0199-99-01213/1 • GE-JENBACHER Engine types 2 and 3: Gas type A and catalytic converter, engine type 4 B: Gas type A and catalytic converter, engine types 6 C & E: Gas type A and and catalytic converter • MAN M3271-2, stationary engines, natural gas • MAN M3271-4, stationary engines, specialty gases • MAN Diesel & Turbo, 4-stroke medium-speed engines • MHIET GS 16 R2, natural gas • MTU 4000 series, natural gas, L32/33 - L61/62/63/64 • MTU 4000 series, biogas, L32 FB - L62 FB • MTU 400 series, natural gas and propane • MWM 2105/14, 2105/sulfated ash content max. 0.5% by weight, 616, 620, 632 engines • ROLLS-ROYCE BERGEN K-G1, K-G2, K-G3, K-G4, BV-G • TEDOM Natural gas and propane • WAUKESHA - 12 - 1880 <p>Nateria MP 40 also meets the technical requirements of CATERPILLAR, CUMMINS and WÄRTSILÄ among other manufacturers</p>
Nateria MP 50	• Mineral oil	• Natural gas engines operating under very severe conditions	<ul style="list-style-type: none"> • Ash content < 0.5% • TBN: 4.6 • Very long-life oil • Excellent cleaning action • Improved anti-wear properties 	50	



1

GENERAL GREASE LUBRICATION Motor oils



Gas engines

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	SAE GRADE	SPECIFICATIONS
Nateria MX 40	• Semi-synthetic oil	• Natural gas engines operating under very severe conditions	<ul style="list-style-type: none"> • Ash content < 0.5% • TBN: 6.7 • Extended oil change intervals: 40% • Excellent cleaning action • Limits the formation of deposits at high temperatures 	40	<ul style="list-style-type: none"> • MWM TCG 2016/2020/2032 • MWM TCG 3016/3020 • CAT CG 132/170/260 • CAT CG 132B/170B • Caterpillar 3500 Series • Wärtsilä 34/50 SG • Jenbacher Type 2 & 3 • Jenbacher Type 4A, B, C, E • Jenbacher Type 6C, E, F, J, H, K • Rolls Royce Bergen B35: 40, B36: 45 (trialinprogress) • Waukesha VGF, VHP, 275GL/GL+, APG (non-cogen application)
Nateria MJ 40	• Mineral oil	• Natural gas and biogas engines: wastewater treatment plants, slurry, industrial discharges	<ul style="list-style-type: none"> • Ash content < 1% • TBN: 8.8 • Long-life oil • Enhanced detergent power 	40	<ul style="list-style-type: none"> • CATERPILLAR ENERGY SOLUTIONS sulfated ash content between 0.5 and 1.0% by weight, CG132/170/260 engines • INNIO JENBACHER Gas type B and C, engines type 2 and 3 • MAN M3271-4, specialty gas, all engines • MTU 400BR series, natural gas, all engines • MTU 4000 series, natural gas, L62FB engines • MWM sulfated ash content between 0.5 and 1.0% by weight, TCG 2016/20/32 engines • TEDOM natural gas, Cento engines
Nateria MWX 40	• Mineral oil	• Natural gas engines (steel piston engines) operating at extreme temperatures	<ul style="list-style-type: none"> • Ash content: 0.5% • TBN: 7.3 • Extended oil service life • Optimized valve return 	40	<ul style="list-style-type: none"> • Jenbacher Type 2&3 • Jenbacher Type 4A, B, C, E • Jenbacher Type 6C, E, F, J • Waukesha VGF, VHP, 275GL/GL+, APG • Wärtsilä 175/220/25/28/31/34/50 SG • Wärtsilä 31/32/34/46/50 DF • Bergen B36:45
Nateria V 40	• Mineral oil	• Two- and four-stroke gas engines and compressor units	<ul style="list-style-type: none"> • Ashless • Compatible with catalytic converters 	40	<ul style="list-style-type: none"> • MIL-L-2104A Clark • Cooper-Bessemer • Ingersoll-Rand KVS

Diesel engines for emergency generators

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	SAE GRADE	SPECIFICATIONS
Disola SGS 40	• Mineral oil	• Diesel engines for emergency generators: hospitals, nuclear power plants, offshore units	<ul style="list-style-type: none"> • Detergent • Safe emergency start-up at full power • Excellent internal engine protection during shutdown periods thanks to anticorrosion additive 	40	<ul style="list-style-type: none"> • MIL-L-2104 C • MIL-L-21260 C • EDF PMUC



1

GENERAL GREASE LUBRICATION Circulating oils

Cirkan, Cortis and **Misola** circulating oils are designed for centralized lubrication of the various components of industrial machinery: bearings, gears, etc.

TotalEnergies offers a wide range of circulating oils, from pure mineral oil for low-load systems operating at moderate temperatures to highly refined products suited to the harshest operating conditions.

Misola oils were specially developed for the paper industry.

The classifications indicated for all these fluids are given in standards ISO 6743-4 and ISO 6743-6, according to performance level and viscosity grade.



Circulating oils				
PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Cirkan C	<ul style="list-style-type: none"> Lost or pick-up lubrication for movements, articulations, bearings, chains 	<ul style="list-style-type: none"> Highly refined paraffinic mineral oil. High natural viscosity index 	32 – 320	<ul style="list-style-type: none"> ISO 6743-4 HH • ISO 11158 HH
Cirkan RO	<ul style="list-style-type: none"> Hydraulic equipment and circuits subject to temperature limits 	<ul style="list-style-type: none"> Protection of equipment against corrosion Oxidation resistance 	32 – 460	<ul style="list-style-type: none"> ISO 6743-4 HL • ISO 6743-6 CKB ISO 11158 HL • ISO 12925-1 CKB
Cirkan ZS	<ul style="list-style-type: none"> Hydraulic equipment and circuits operating under severe temperature and load conditions 	<ul style="list-style-type: none"> Very good protection against wear and corrosion Enhanced protection of equipment subject to heavy loads Oxidation resistance 	220 320	<ul style="list-style-type: none"> ISO 6743-6 CKB • ISO 12925-1 CKB
Cortis MS	<ul style="list-style-type: none"> Gears, movements and various mechanical systems requiring anti-wear protection For Morgoil hydrodynamic bearings, BGV and Danieli bearings 	<ul style="list-style-type: none"> Very good protection against wear and corrosion Enhanced protection of equipment subject to heavy loads Ash-free additives to prevent the formation of deposits Excellent demulsification properties 	100 – 680	<ul style="list-style-type: none"> ISO 6743-4 HM • ISO 12925-1 CKC Danieli® Standard • Morgoil® Lubricant Morgoil® Advanced Lubricant
Cortis ZS	<ul style="list-style-type: none"> Meets the requirements for MORGOIL hydrodynamic bearings used in the steel industry Suitable for applications where oil may be contaminated with water 	<ul style="list-style-type: none"> Excellent oxidation stability: extended life at high temperatures Excellent demulsification properties Very good anti-wear properties Good protection against rust and corrosion at high temperatures 	100 150 220 320 460	<ul style="list-style-type: none"> SMS Siemag, MORGOIL SN 180, 3 Lubrifiant standard • SMS Siemag, MORGOIL SN 180, 4 Advanced Lubricant ISO 12925-1 CKD • DIN 51517-3 CLP



1

GENERAL GREASE LUBRICATION Circulating oils



Circulating oils for paper machinery

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Misola AFH	<ul style="list-style-type: none"> • Mineral oil • Ash-free additivation 	<ul style="list-style-type: none"> • Bearings and gears operating in a hot and humid environment 	<ul style="list-style-type: none"> • Excellent thermal stability and oxidation resistance • Enhanced wear protection • Excellent protection against corrosion • Ash-free additives to reduce the formation of deposits 	150 220	<ul style="list-style-type: none"> • ISO 12925-1 CKD • Voith VN 108 • FAG FE8 PM
Misola ASC	<ul style="list-style-type: none"> • Mineral oil • Ash-free additivation 	<ul style="list-style-type: none"> • Equipment operating under high temperature and load conditions • Bearings and gears operating in a hot and humid environment • Damp and dry sections of paper machinery • Recommended if a casing frame is present 	<ul style="list-style-type: none"> • Excellent load capacity • Long oil lifespan thanks to very good thermal stability and oxidation resistance • Excellent anti-corrosion properties, even in the presence of acidic process water • Ash-free additives to reduce the formation of deposits 	100 – 320	<ul style="list-style-type: none"> • ISO 12925-1 CKD • Voith • Metso • SKF • FAG
Misola MAP	<ul style="list-style-type: none"> • Semi-synthetic oil • Ash-free additivation 	<ul style="list-style-type: none"> • Smooth or rolling bearings and gears with a moderate load are subject to significant temperature constraints • Dryer cylinder bearings for paper machinery • Hydraulic circuits in variable crown cylinders 	<ul style="list-style-type: none"> • Capable of withstanding temperatures up to +130°C • Excellent protection against corrosion • Ash-free additives to reduce the formation of deposits • Very long-life oil 	150 – 460	<ul style="list-style-type: none"> • ISO 6743-4 HL • ISO 12925-1 CKB • SKF Rollen Test
Misola MAP SH	<ul style="list-style-type: none"> • Semi-synthetic oil (PAO) • Ash-free additivation 	<ul style="list-style-type: none"> • Smooth or rolling bearings and gears with a moderate load are subject to significant temperature constraints • Recommended for dryer cylinder bearings for paper machinery 	<ul style="list-style-type: none"> • Able to withstand considerable temperature stresses • Excellent anti-wear and corrosion prevention properties • Ash-free additives to reduce the formation of deposits • Very long-life oil 	150 – 460	<ul style="list-style-type: none"> • ISO 12925-1 CKS • Voith VN108 • Metso • SKF Rollen Test • FAG FE8 PM
Misola ZS	<ul style="list-style-type: none"> • Mineral oil 	<ul style="list-style-type: none"> • Equipment operating under high temperature and load conditions • Bearings and gears operating in a hot and humid environment • Damp and dry sections of paper machinery • Recommended if a casing frame is present • DthPZn additive technology 	<ul style="list-style-type: none"> • Excellent load capacity • Long oil lifespan thanks to very good thermal stability and oxidation resistance • Excellent anti-corrosion properties, even in the presence of acidic process water • Compatible with products that use DthPZn additives 	150 – 320	<ul style="list-style-type: none"> • ISO 12925-1 CKD • Voith • Metso • SKF • FAG



1

GENERAL GREASE LUBRICATION Special applications



Oils for high-temperature chains

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*
Estar SHT 200	<ul style="list-style-type: none"> • Continuous greasing systems • Movements, roller chains, rollers, conveyors, cams operating in kilns or ovens • IS glass manufacturing machines • Conveyor chains for continuous hot presses 	<ul style="list-style-type: none"> • Synthetic bases that reduce oxidation deposits at very high temperatures • Guaranteed power even at very high temperatures • Ensures continuous lubrication of equipment at temperatures up to +240°C 	200
Estar XHT	<ul style="list-style-type: none"> • Continuous lubrication system • Movements, roller chains, rollers, conveyors, cams operating in kilns • Chains and bars in continuous panel presses for timber production • IS glass manufacturing machines • Conveyor chains for continuous hot presses 	<ul style="list-style-type: none"> • Synthetic base lubricant for mechanisms operating at temperatures of up to +280°C • Reduced consumption due to its very low volatility and oxidation resistance 	68 245
Estar 250 Super Plus	<ul style="list-style-type: none"> • Continuous pressure chains and rollers for the production of panels • Chains and kiln bearings for glass wool production, dryers and polymerization tunnels 	<ul style="list-style-type: none"> • Synthetic ester oil with high stability at very high temperatures • Contains anti-wear, anti-oxidation and anti-corrosion additives • Detergent properties • Very good penetration thanks to low surface tension • Very low evaporation and leaves no coke residues at temperatures up to 280°C 	255
NSF Nevastane Chain Oil XT	<ul style="list-style-type: none"> • Lubrication of conveyor chains subjected to very high temperatures in the agri-food industry • Suitable for heavy loads, allows lubrication of any industrial mechanism working at high temperatures where incidental contact with food products is permissible under HACCP 	<ul style="list-style-type: none"> • Synthetic base lubricant for mechanisms operating at temperatures of up to +240°C • Excellent resistance to bacteria and mold development 	220

Oil for gasometers

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*
Gasol AW	<ul style="list-style-type: none"> • Industrial process oil for lubricating gasometer circuits that require a low pour point and are frequently exposed to aqueous components 	<ul style="list-style-type: none"> • Protects mechanical friction components from wear • Good neutrality with regard to seals • Good anti-corrosion properties • High thermal stability • Protects metal surfaces in contact with water, dust or corrosive vapors • Excellent demulsification properties • Strong anti-foaming properties 	68

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Special applications



Oils for steam-driven cylinder engines

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
Cyl	• Mineral oil, non-compounded	• Steam engine cylinders	• Ultra-refined base oils • High viscosity index	460 680 1000	• ISO 6743-99 Z
Cyl C	• Mineral oil, compounded	• Steam engine cylinders	• Ultra-refined base oils • High viscosity index	460 680	• ISO 6743-99 Z

Oil for mechanical shaft seals

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
 Barrier Fluid 5	• Synthetic hydrocarbon oil	• Lubrication and cooling of mechanical shaft seals	<ul style="list-style-type: none"> • Provides for reduced internal friction and more efficient heat dissipation • Reduces the formation of deposits at high temperatures and extends life • Suitable for use in the food industry • Chemically inert and compatible with most process oils 	3.9	<ul style="list-style-type: none"> • NSF H1 • Complies with the FDA's CFR 178.3570 standard

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Heat transfer fluids

Seriola heat transfer fluids serve a wide variety of applications: heating for domestic and industrial settings, cement manufacturing processes, paper mills, the chemical and plastics processing industries, and plants that combine heating and cooling cycles.

Whether with a mineral or synthetic base, **Seriola** fluids stand out for their:

- ◆ High thermal stability, which prevents fouling.
- ◆ High heat exchange capacity that saves energy and reduces plant warm-up times.
- ◆ A long service lifespan with no change in product quality, at process temperatures up to +310°C.



PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Seriola	• Mineral oil	• Closed circuits, airtight	• Process temperature < +310°C (+350°C in film)	32 100	• ISO 6743-12 L-QC
NSF. Nevastane HTF	• White mineral oil	• Closed circuits, airtight • Numerous manufacturing processes in the agri-food industry: water baths, autoclaves, reactors, heaters, presses and molds	• Process temperature < +310°C (+330°C in film)	32	• NSF H1 & HT1 • ISO 6743-12 L-QC • ISO 21469 • HALAL, KOSHER
Seriola AB	• Synthetic oil (alkylbenzene)	• Closed circuits, airtight • For regulating heating and temperature in any industry	• Process temperature from -30°C – +300°C (+320°C in film) • High solvent power • Superior oxidation resistance	20	• ISO 6743-12-L-QC-300 • DIN 51522 - Class Q
Seriola Cleaner	• Synthetic, detergent	• Hot cleaning of heat transfer circuits • Miscible with mineral-base heat transfer fluids	• Process temperature ~+270°C • Very high thermal stability	25	

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Process oils



Finavestan white oils are produced by advanced refining processes that give them very high purity.

As medicinal-grade oils, they meet the requirements of the pharmaceutical, cosmetic and agri-food industries depending on national legislation.

Lyrans products are technical white oils marked by very high purity. They are used in numerous non-food applications as lubricants, plasticizers or components.

White oils and petroleum jellies

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Finavestan A 50 B A 80 B A 100 B A 180 B A 210 B A 300 B A 360 B A 520 B	• White oil, medicinal	For the following industries: • Plastics: plasticizer for PS and other polymers used in packaging intended for food contact • Pharmaceutical: excipient	• Very high purity • Odorless, flavorless, colorless • Does not contain sulfur or aromatic hydrocarbons	7.5 15 23 29 40 62 70 100	• The use of these oils depends on prevailing national laws • European Union pharmacopoeia • U.S. pharmacopoeia • U.S. FDA: 21 CFR 178.3620 (a) • White mineral oil • NSF H1
Lyrans C 80 B	• White oil, technical	Process oil or feedstock for: • Lubricating small mechanisms • Manufacturing plastics, rubbers and plant protection products • Used in ink and textile oils	• Very high purity • Odorless, flavorless, colorless • Does not contain sulfur or aromatic hydrocarbons	15	• FDA, 21 CFR 178-3620 (b)
Emetan M	• Petroleum jelly, medicinal	• Intended mainly for the cosmetics and pharmaceutical industries as a lubricant or feedstock	• Very high purity • Odorless, flavorless		• The use of these petroleum jellies depends on the prevailing national laws • Emetan M only: European Union, French, German and U.S. pharmacopoeia
Emetan T	• Petroleum jelly, technical				

*Typical kinematic viscosity at 40°C in mm²/s






1

GENERAL GREASE LUBRICATION Process oils



Vegetable oils for the agri-food industry

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
 Finaturoil K2	<ul style="list-style-type: none"> • 100% plant-based • No compounds of animal origin • Non-GMO 	<ul style="list-style-type: none"> • For the bread and bakery industry: pasta splitters and bread slicers 	<ul style="list-style-type: none"> • Economical vegetable oil • Does not alter the taste or odor of the finished product 	35	<ul style="list-style-type: none"> • NSF 3H • Food processing aid approved by France's DGCCRF
 Finaturoil D			<ul style="list-style-type: none"> • High-performance product • Less oil consumption • Reduction in deposit formation 	35	
 Finaturoil HT SP		<ul style="list-style-type: none"> • For the bread and bakery industry: mold release oil for use at high temperatures 	<ul style="list-style-type: none"> • Reduced product consumption • Neutral effect on the finished product's odor and taste • Easy to use 	100	

Process oils

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*
Torilis	• Pure mineral oil	<ul style="list-style-type: none"> • Used as a process oil in various industries: rubber, plastics, textiles (finishing), leather processing, printer's inks • Anti-caking and anti-dust agent 	<ul style="list-style-type: none"> • High natural viscosity index • Ideally suited for compounds 	32 – 500
Torilis HC	• Mineral oil, hydrocracked		<ul style="list-style-type: none"> • Very high viscosity index • Enhanced purity compared to conventional mineral oil: low sulfur and aromatic content • Made from advanced refining techniques to improve oxidation resistance and increase thermal stability 	14, 32 in 100

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Insulating oils





Isovoltine oils are extremely effective at insulating transformer components and ensuring efficient system cooling. They also offer remarkable protection against oxidation and prevent wear of the core, windings and other insulating materials.

Isovoltine's key properties include:

- ◆ Enhanced insulation properties due to high dielectric breakdown voltage, resistance, interface surface tension and absence of polar substances. Outstanding oxidation resistance.

- ◆ Very high purity levels that minimize power factors and help prevent temperature increases.
- ◆ Excellent cooling properties, thanks to good fluidity and heat transfer capacity.
- ◆ A highly-refined oil to ensure chemical stability and service durability.
- ◆ Very effective protection of materials due to its non-corrosive and cleansing properties.

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Isovoltine II	• Mineral oil, naphthenic (non-inhibited)	• For transformers, circuit breakers and other high-voltage equipment	• High insulating power • Very high resistance to oxidation, offering prolonged service life • Excellent cooling properties	10	• IEC 60296:2012 – Non-inhibited
Isovoltine II X	• Mineral oil, naphthenic (inhibited)	• For transformers, circuit breakers and other high-voltage equipment	• High insulating power • Contains an inhibitor for improved oxidation resistance • Good cooling properties	10	• IEC 60296:2012 – Inhibited
 Isovoltine Bio	• Synthetic ester oil	• Transformers • Strongly recommended for reducing fire risks (mines, integrated transformers)	• Biodegradable • Excellent fire resistance • No danger to the aquatic environment	26	• IEC 61099 • IEC 61039 - Class K3 • OECD 301 B • NWG
 Isovoltine Bio VE	• Vegetable oil	• Transformers • Strongly recommended for reducing fire risks (mines, integrated transformers)	• Readily biodegradable • Optimal fire resistance • Increased water absorption to extend the life of the insulation paper	39	• IEC 62770 • IEC 61039 - Class K2 • OECD 301 B

*Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Pneumatic tools

Pneuma oils enhance the performance of pneumatic equipment and reduce fluid consumption.

◆ Excellent impact resistance thanks to extreme-pressure additives and very good protection against wear.

◆ Water-repellent and anti-rust properties.

◆ Good adhesion and hold, preventing environmental pollution caused by oil mist.



PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
Pneuma	• Mineral oil	• Pneumatic perforators/pneumatic impact equipment, line greasers or atomizers for hammer drills	• Can be used in confined atmospheres: galleries, tunnels • Protection against tool wear • Anti-corrosion properties	46 – 150	• ISO 6743-11 P • ISO-L-PAB class

*Typical kinematic viscosity at 40°C in mm²/s



1


GENERAL GREASE LUBRICATION Solvents & detergents



Finasol degreasers are ideal for cleaning engines and a wide range of machine parts. They eliminate grease and detach insoluble deposits without impairing the quality of the cleaned components.

Finadet detergents are designed for cleaning production areas. They can be used in the agri-food industry and for difficult pollution clean-up tasks.

Grease solvents

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	DENSITY*	SPECIFICATIONS
Finasol MF	• Emulsifiable grease solvent	• Multi-purpose	• Completely emulsifies oil-based soiling and separates insoluble components	809	
Finasol BAC	• Fast-evaporating degreaser	• Degreaser for mechanical devices: machined parts, frameworks, machine tool frames, bearings, gears, filters, injection molds • Surface preparation before assembly	• Evaporates rapidly • Compatible with all metals, most plastics and elastomers	785	
Finasol FPI	• Synthetic hydrocarbon • Benzene-free • Aromatic-free	• Degreasing and cleaning for the agri-food industries: machine parts, frameworks, machine tools, bearings, gears, filters, chains	• Odorless • Compatible with metals, glass, ceramics, composite materials, most thermoplastics and thermosets that aren't sensitive to organic solvents	742	• NSF K1
 Finasol Bio	• Pure or diluted degreasing agent • 100% plant-based • VOC-free	• For cleaning all engine types, removing fuels and resins, eliminating tar and bitumen, cleaning floors	• Odorless, biodegradable and non-toxic • Non-aggressive to elastomers and plastics	855	• Readily biodegradable per OECD test 301 B • Completely biodegradable per OECD test 302 C

Detergents

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	DENSITY*	SPECIFICATIONS
Finadet MF	• Super-concentrated detergent	• Difficult cleaning tasks: metal parts, plastics, conveyor belts, tanks, bodywork, brushing and washing machines, floors	• Works powerfully on all types of soiling: oils, greases, waxes, sludge and inorganic substrates	1089	
Finadet FPI	• Special agri-food detergent	• Degreaser and cleaner for the agri-food industries: metal or plastic parts, vehicles used to transport foodstuffs	• Meets the requirements of agri-food industries	1086	• NSF A1 • Menthol fragrance
Finadet SW	• Special detergent for washing machine	• Special cleaning of components placed in closed washing machines	• Non-foaming	742	
PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY**	SPECIFICATIONS
Cleaner F & V	• Detergent additive	• Cleaning of lubricating circuits: hydraulic, heat transfer, paper machinery, etc.	• Superior detergent and dispersant power for effective circuit cleaning • Recommended for elimination of varnishes	52 (F) 173 (V)	

*Typical density at 25°C in kg/m³ **Typical kinematic viscosity at 40°C in mm²/s



1

GENERAL GREASE LUBRICATION Antifreezes & coolants



Coolelf is a line of ready-to-use coolants. **Glacelf** antifreezes must be diluted in water that meets manufacturer specifications.

TotalEnergies coolants protect engines against frost and corrosion of metal cooling system components.

Using organic additives from the **Supra** line improves the performance of these products.

- ◆ Very long product life.
- ◆ Zero deterioration in anti-corrosion properties thanks to non-wasting additives.
- ◆ No formation of deposits that can impair heat transfer capacity.

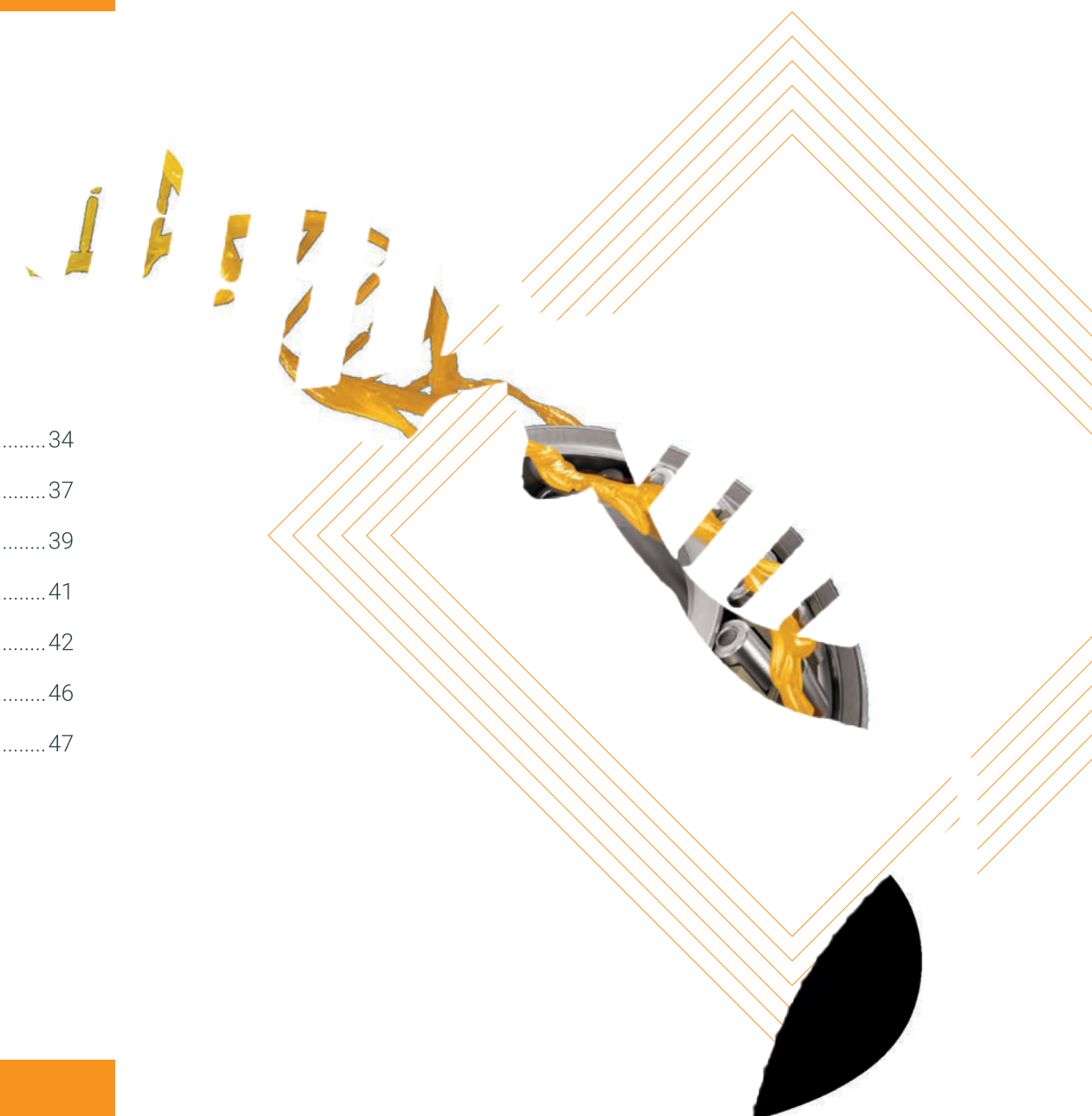
PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ANTIFREEZE PROTECTION	SPECIFICATIONS
Coolelf Supra	<ul style="list-style-type: none"> • Monoethylene glycol (MEG)-based antifreeze • Organic corrosion inhibitors 	<ul style="list-style-type: none"> • Industrial diesel engines, gas engines of all sizes 	<ul style="list-style-type: none"> • Ready-to-use coolant • Long lifespan 	-26°C	<ul style="list-style-type: none"> • AFNOR NF R 15-601 • ASTM D 3306, D 4656, D 4985 • BS 6580 • SAE J 1034 MWM (Deutz) • GE Jenbacher • Rolls-Royce • MTU
Glacelf Supra			<ul style="list-style-type: none"> • Antifreeze concentrate • Long lifespan 	-20°C – -69°C depending on the percentage dilution	
Coolelf CHP Supra	<ul style="list-style-type: none"> • Monoethylene glycol (MEG)-based antifreeze • Organic corrosion inhibitors 	<ul style="list-style-type: none"> • Engines for cogeneration • Recommended for countries where antifreeze protection down to -7°C is sufficient 	<ul style="list-style-type: none"> • Ready-to-use coolant • Long lifespan • Enhanced heat transfer capacity 	-7°C	<ul style="list-style-type: none"> • AFNOR NF R 15-601 • ASTM D 3306, D 4985 • BS 6580, BS 5117 • SAE J 1034 MWM (Deutz) • GE Jenbacher
Glacelf CHP Supra			<ul style="list-style-type: none"> • Antifreeze concentrate • Long lifespan • Enhanced heat transfer capacity 	-7°C – -15°C depending on the percentage dilution	
Coolelf Supra GF NP	<ul style="list-style-type: none"> • Monoethylene glycol (MEG)-based coolant • Organic corrosion inhibitors 	<ul style="list-style-type: none"> • Nuclear industry • Recommended for cold countries 	<ul style="list-style-type: none"> • Ready-to-use coolant • Long lifespan • Increased antifreeze protection 	-37°C	<ul style="list-style-type: none"> • AFNOR NF R 15-601 • ASTM D 3306, D 4656, D 4985, D 5345 • BS 6580, BS 5117 • SAE J 1034, EDF, PMUC • MTU
Coolelf MPG Supra	<ul style="list-style-type: none"> • Monopropylene glycol (MPG)-base antifreeze • Organic corrosion inhibitors 	<ul style="list-style-type: none"> • Agri-food and pharmaceutical industries, cogeneration plants: heat and cooling transfer circuits 	<ul style="list-style-type: none"> • Ready-to-use coolant • Guaranteed good heat transfer 	-26°C	<ul style="list-style-type: none"> • AFNOR NF R 15-601 • ASTM D 4656 • BS 6580
Glacelf MPG Supra			<ul style="list-style-type: none"> • Antifreeze concentrate • Guaranteed good heat transfer 	-17°C – -38°C depending on the percentage dilution	
WT Supra	<ul style="list-style-type: none"> • Aqueous concentrate of special organic inhibitors for corrosion and cavitation 	<ul style="list-style-type: none"> • Industrial diesel engines and gas engines that do not require antifreeze protection 	<ul style="list-style-type: none"> • Extended corrosion and cavitation protection • Optimal heat transfer capacity.. 		<ul style="list-style-type: none"> • MWM (Deutz) • Wärtsilä • Rolls-Royce: Bergen • GE Jenbacher
NSF Nevastane Antifreeze	<ul style="list-style-type: none"> • Monopropylene glycol (MPG)-base antifreeze 	<ul style="list-style-type: none"> • Cooling circuits in the food industry, e.g., in the manufacture of beverages, ice cream or frozen products 	<ul style="list-style-type: none"> • -15°C – -40°C depending on the percentage dilution • Specifically protects metal alloys and equipment against corrosion 	-15°C – -40°C depending on the percentage dilution	<ul style="list-style-type: none"> • NSF HT1



2

Greases

Lithium/Calcium	34
Lithium complex	37
Aluminium complex	39
Polyurea	41
Calcium sulfonate complex	42
Calcium	46
Special-purpose greases	47



2

GREASES Lithium/Calcium



Multis and **Lical** are lines of high-performance multi-purpose greases based on Lithium/Calcium soaps.

They are available in NLGI grades 000 to 3, with or without solid additives.

Multis and **Lical** greases are formulated to provide good protection against wear, rust and water wash-out.

Multis and **Lical** greases help you streamline inventories and reduce maintenance costs.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Multis 2	• Multi-purpose grease for automotive and industrial applications	• Compatible with most conventional soaps	Lithium/calcium	2	120	-25°C – +120°C	L-XBCEA 2	K2K-25
Multis 3			Lithium/calcium	3	120	-20°C – +120°C	L-XBCEA 3	K3K-20
Multis EP 000	• For centralized greasing systems, gearboxes	• Good pumpability • Extended service lifespan thanks to the good resistance of the lubricating film	Lithium	000	150	-30°C – +100°C	L-XCBEB 000	GP000G-30
Multis EP 00			Lithium/calcium	00	150	-30°C – +100°C	L-XCBEB 00	GP00G-30
Multis EP 0			Lithium/calcium	0	150	-30°C – +120°C	L-XCCEB 0	MP0K-30
Multis EP 1	• Extreme-pressure multi-purpose grease for a wide range of industrial and automotive applications	• Streamlined inventories and simpler maintenance operations	Lithium/calcium	1	150	-30°C – +120°C	L-XBCEB 1	KP1K-30
Multis EP 2			Lithium/calcium	2	150	-25°C – +120°C	L-XBCEB 2	KP2K-25
Multis EP 3			Lithium/calcium	3	150	-20°C – +120°C	L-XBCEB 3	KP3K-20
Multis MS 2			Lithium/calcium	2	150	-25°C – +130°C	L-XBCEB 2	MPF2K-25

*Typical kinematic viscosity of the base oil at 40°C in mm²/s

2

GREASES Lithium/Calcium



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Lical MS 2	• Extreme-pressure multi-purpose grease recommended for heavy-duty applications in harsh environments (water, dust)	• Contains 3% MoS ₂ (molybdenum disulfide) • Very good resistance to heavy loads and impact • Very good adhesion to metal surfaces	Lithium/calcium	2	210	-20°C – +120°C	L-XBCHB 2	KPF2K-20
Lical WR EP 2	• Extreme-pressure grease recommended for most industrial applications, including wet and heavy-duty applications	• Very good water resistance • Useful for streamlining inventories • Simplifies maintenance operations	Lithium/calcium	2	110	-25°C – +120°C	L-XBCHB 2	KP2K-25
Lical EP 2	• Extreme-pressure multi-purpose grease recommended for most industrial applications, including heavy-duty applications	• Good water resistance • Useful for streamlining inventories • Simplifies maintenance operations	Lithium/calcium	2	190	-25°C – +130°C	L-XBDHB 2	KP2K-25

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Multis XHV 00	• Extreme-pressure multi-purpose grease for high-load, low-speed applications where a water wash-out risk exists	• Exceptional grip on metal surfaces • Reduces maintenance and downtime	Lithium/calcium	00	500	-20°C – +100°C	L-XBBHB 00	KP00H-20
Multis XHV 2	• Extreme-pressure multi-purpose grease for very high-load, low-speed applications where a water wash-out risk exists • Recommended for fifth wheel couplings in the transportation sector		Lithium/calcium	2	1300	-20°C – +120°C	L-XBCHB 2	KP2K-20
Multis ZS 000	• Multi-purpose synthetic grease for centralized lubrication systems requiring NLGI 00 or 000 • Generally indicated for vehicle chassis, trucks and construction machinery	• Impressive pumpability even at very low temperatures • Recommended for centralized lubrication systems by MAN, Willy Vogel, Mercedes-Benz	Lithium/calcium	00 - 000	42	-45°C – +120°C	L-XECFB 00/000	MP00/000K-45
Multis XLT 2	• Very high-performance synthetic grease for very high-speed and/or very low-temperature applications	• Extended range of operating temperatures • Reduced power consumption due to reduced operating torque • Achieves a very high speed factor • Compatible with plastics	Lithium/calcium	2	18	-60°C – +120°C	L-XECEA 2	K2K-60





*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES Lithium/Calcium



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
 Biomultis EP 0	• Extreme-pressure biodegradable universal grease for applications requiring very soft, environmentally friendly lubricants (NLGI grade 0)	<ul style="list-style-type: none"> • Fully biodegradable per OECD standard 301-B (> 80%) • Classified as an environmentally acceptable lubricant (EAL) under the 2013 Vessels General Permit (VGP) issued by the U.S. Environmental Protection Agency (EPA) • Synthetic base oil for enhanced performance at low temperatures 	Lithium	0	150	-30°C – +140°C	L-XCDEB 0	KP0K-30
 Biomultis EP 1	• Extreme-pressure biodegradable universal grease for applications requiring environmentally friendly lubricants and NLGI grade 1 grease	<ul style="list-style-type: none"> • Fully biodegradable per OECD standard 301-B (> 80%) • Classified as an environmentally acceptable lubricant (EAL) under the 2013 Vessels General Permit (VGP) issued by the U.S. Environmental Protection Agency (EPA) • Synthetic base oil for enhanced performance at low temperatures 	Lithium	1	150	-45°C – +140°C	L-XCDEB 1	KP1K-30
 Biomultis EP 2	• Extreme pressure biodegradable multi-purpose grease for industrial and marine applications requiring environmentally acceptable lubricants (EAL)	<ul style="list-style-type: none"> • Excellent biodegradability per OECD 301-B (> 60%) • Classified as an environmentally acceptable lubricant (EAL) under the 2013 Vessels General Permit (VGP) issued by the U.S. Environmental Protection Agency (EPA) • Good resistance to water wash-out 	Lithium	2	150	-30°C – +140°C	L-XCEE B 2	KP2K-30
 Biomultis XHV 2	• Specialty biodegradable grease for extreme load applications and applications requiring a biodegradable product	<ul style="list-style-type: none"> • Excellent adhesion to metal • Extended lubrication intervals • Excellent protection against water contamination and corrosion • Good pumpability at low temperatures 	Lithium	2	680	-40°C – +140°C	L-XDDHB 2	KP2N-40

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES


Lithium complex



Multis Complex lithium soap greases are premium-quality products for a wide range of applications requiring intensive use.

They are formulated with high-performance additives offering impressive substrate protection.

The **Multis Complex** line is an excellent choice for harsh operating conditions such as extreme temperatures, heavy loads and contaminated environments (water, dust).

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Multis Complex EP 2	• Extreme-pressure multi-purpose grease suitable for wheel bearings, ball and roller bearings, plain bearings, seals	• Excellent mechanical and thermal stability • Reduced downtime and maintenance costs	Lithium complex	2	165	-20°C – +160°C	L-XBEHB 2	KP2P-20
Multis Complex EP 3			Lithium complex	3	165	-20°C – +160°C	L-XBDHB 3	KP3N-20
Multis Complex MV 2	• Extreme-pressure multi-purpose grease for general lubrication. Medium to heavy load	• Excellent adhesion of lubricant film • Excellent mechanical and thermal stability	Lithium complex	2	235	-30°C – +160°C	L-XCEHB 2	KP2P-30
 Multis Complex HV 2	• Extreme pressure multi-purpose grease for intensive-use applications • For wheel bearings, ball bearings, roller bearings, plain bearings, seals, etc.	• Excellent mechanical and thermal stability • Reduced downtime and maintenance costs	Lithium complex	2	340	-30°C – +160°C	L-XBEHB 2	KP2P-30
Multis Complex HV 2 Moly	• Grease for applications with extreme loads and high temperatures	• Contains 3% MoS ₂ (molybdenum disulfide) • Good water resistance • Reduces wear, rust and corrosion	Lithium complex	2	340	-30°C – +160°C	L-XCEHB 2	KPF2P-30
Multis Complex XHV2 Moly	• Extreme-pressure grease suitable for slow, heavy-load bearings and sliding mechanisms, especially in the mining industry	• Contains 3% MoS ₂ (molybdenum disulfide) • Reduces wear, rust and corrosion • Excellent water resistance • Excellent shock and vibration resistance	Lithium complex	2	800	-20°C – +160°C	L-XDEHB 2	KPF2P-20
Multis Complex S2A	• Semi-synthetic grease for general lubrication, suitable for heavy-duty applications, especially at high temperatures where an ordinary grease is not sufficient	• Outstanding lubrication performance at low and high temperatures • Improved mechanical efficiency	Lithium complex	2	120	-25°C – +160°C	L-XBEHB 2	KP2P-25

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES Lithium complex



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Multis Complex SHD 00	<ul style="list-style-type: none"> • Extreme-pressure, high-performance, semi-fluid synthetic grease suitable for transmissions 	<ul style="list-style-type: none"> • Reduces wear in gear trains due to excellent EP properties • Extended service lifespan even at high operating temperatures • Reduced power consumption due to reduced operating torque 	Lithium complex	00	460	-50°C – +160°C	L-XEEHB 00	KP00P-50
Multis Complex SHD 32	<ul style="list-style-type: none"> • High-performance synthetic grease for bearings operating across an extended temperature range 	<ul style="list-style-type: none"> • Outstanding performance at low and high temperatures • Improved mechanical efficiency • Long service lifespan 	Lithium complex	2	32	-50°C – +160°C	L-XEEHB 2	KP2P-50
Multis Complex SHD 100	<ul style="list-style-type: none"> • Extreme-pressure synthetic grease especially suited for applications with high-speed bearings such as electric motors 		Lithium complex	2	100	-50°C – +160°C	L-XEEHB 2	KP2P-50
Multis Complex SHD 220	<ul style="list-style-type: none"> • Extreme-pressure multi-purpose synthetic grease for intensive-use applications in the automotive and industrial sectors 	<ul style="list-style-type: none"> • Outstanding performance at low and high temperatures • Improved mechanical efficiency • Extended service life 	Lithium complex	2	220	-40°C – +160°C	L-XEEHB 2	KP2P-40
Multis Complex SHD 460	<ul style="list-style-type: none"> • High-performance synthetic grease for outstanding protection of low-speed bearings subjected to high loads over an extended range of temperatures, recommended for the pulp and paper industry 		Lithium complex	1.5	460	-40°C – +160°C	L-XEEHB 1/2	KP1/2P-40

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES

Aluminium complex



Copal complex aluminum soap greases have excellent adhesiveness to metal surfaces. The nature of aluminum complex soap also makes these greases highly resistant to water wash-out.

The **Copal** line is recommended for slow, intensive-use applications subject to shocks and heavy loads.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Copal EP 00	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion multi-purpose grease for high temperatures • Suitable for applications subject to shock, mobile cranes, presses 	<ul style="list-style-type: none"> • Good adhesion to metal surfaces 	Aluminium complexe	00	165	-20°C – +150°C	L-XBDEB 00	KP00N-20
Copal EP 2	<ul style="list-style-type: none"> • Extreme-pressure, adhesive multi-purpose grease for high temperatures • Suitable for bearings subjected to shock, heavy-load transmission, assemblies, mobile cranes, presses 	<ul style="list-style-type: none"> • Good adhesion to metal surfaces 	Aluminium complex	2	165	-20°C – +150°C	L-XBDHB 2	KP2N-20
Copal MS 2	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion multi-purpose grease for applications subject to shock and vibration over an extended range of temperatures • Suitable for boundary conditions for lubrication 	<ul style="list-style-type: none"> • Contains 2.5% MoS₂ (molybdenum disulfide) • Good adhesion to metal surfaces • Good water resistance 	Aluminium complex	2	165	-20°C – +150°C	L-XBDEB 2	KPF2N-20
Copal GEP 0	<ul style="list-style-type: none"> • Extreme-pressure, adhesive multi-purpose grease for high temperatures and loads • Recommended for the lubrication of open gear trains, especially during running-in 	<ul style="list-style-type: none"> • Contains 10% graphite • Good adhesion to metal surfaces • Can extend service life of gear train 	Aluminium complex	0	750	-20°C – +150°C	L-XBDHB 0	OGPF0N-20
Copal OGL 0	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion grease for heavy loads and high temperatures • Application in cement plants: exposed gears in kilns and crushers • Application in sugar grinders: open gear trains in sugar cane crushers 	<ul style="list-style-type: none"> • Contains 8% graphite and 1% MoS₂ (molybdenum disulfide) • Incorporation of two solid additives reduces wear especially near the top and bottom of the gear tooth, reducing energy consumption • Very good water resistance 	Aluminium complex	0-00	> 1000	-20°C – +150°C	L-XBDHB 0/00	OGPF0/00N-20
Copal OGL 2	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion grease for heavy loads and high temperatures • Specifically developed for the lubrication of exposed gear trains when NLGI grade 2 is required 		Aluminium complex	2	> 1000	-15°C – +150°C	L-XBDHB 2	OGPF2N-15
Copal Spray	<ul style="list-style-type: none"> • Extreme-pressure adhesive grease for lubrication of seals, open gears and cables 	<ul style="list-style-type: none"> • Contains 10% graphite • Can be locally applied to all surfaces 	Aluminium complex	1		-30°C – +120°C	Spray	

*Typical kinematic viscosity of the base oil at 40°C in mm²/s

2

GREASES Aluminium complex

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS		
							REGISTRATION	ISO 6743-9	DIN 51502
Nevastane XMF 00	<ul style="list-style-type: none"> • Extreme-pressure, adhesive multi-purpose grease • Suitable for medium- to high-speed stages in the food industry • Roller bearings and plain bearings • Crimpers 	<ul style="list-style-type: none"> • Good adhesion to metal surfaces • Provides excellent corrosion protection and good water resistance 	Aluminium complex	00	120	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBDFA00	K00N-20
Nevastane XMF 0				0				L-XBDFA0	K0N-20
Nevastane XMF 1				1				L-FXBDFB1	KP1N-20
Nevastane XMF 2				2				L-XBDFB2	KP2N-20
Nevastane 2 Plus	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion multi-purpose grease • Suitable for agri-food application when high adhesiveness is required • Roller bearings and plain bearings – medium- and high-speed • Crimpers 	<ul style="list-style-type: none"> • Excellent adhesiveness • Provides excellent protection against corrosion and water resistance 	Aluminium complex	2	150	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBFFA2	KP2R-20
Nevastane HD2T	<ul style="list-style-type: none"> • Extreme-pressure multi-purpose tacky grease, for food processing in the presence of water • Suitable for loaded bearings, bottlers and crimpers 	<ul style="list-style-type: none"> • Contains PTFE (polytetrafluoroethylene) • Exceptional grip on metal surfaces • Excellent resistance to water wash-out. Excellent protection against wear • Low friction coefficient 	Aluminium complex	2	150	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBDFB2	KP2N-20
Nevastane Grease Spray	<ul style="list-style-type: none"> • Bearings, hinges, springs, chains, rails and tools 	<ul style="list-style-type: none"> • Contains Nevastane XMF 2 • Excellent adhesion to metal surfaces • Waterproof • Extreme pressure properties • Anti-corrosion 	Aluminium complex	2	120	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 		

*Typical kinematic viscosity of the base oil at 40°C in mm²/s

2

GREASES Polyurea



The **Altis** line of premium-quality greases provides extended service lifespan even at extreme temperatures.

These greases are based on a polyurea thickener specially formulated for high-speed, high-temperature applications.

Altis greases are suitable for lifetime and long-term lubrication.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Altis EM 2	<ul style="list-style-type: none"> High-performance greases suitable for high-speed bearings and high-temperature applications such as electric motors 	<ul style="list-style-type: none"> Reduced vibration Lower energy consumption Extended re-lubrication intervals 	Polyurea	2	110	-20°C – +180°C	L-XBFHA 2	KP2R-20
Altis MV 2	<ul style="list-style-type: none"> Heavy-duty grease for high-speed and medium-load applications Generally used in fan bearings, roller bearings and guidance systems in dry areas of paper mills 	<ul style="list-style-type: none"> Reduced vibration Lower energy consumption Extended re-lubrication intervals Suitable for fast-start applications 	Polyurea	2	160	-20°C – +160°C	L-XBEEB 2	KP2P-20
Altis SH 2	<ul style="list-style-type: none"> Very high-performance synthetic grease, suitable for high-speed bearings such as electric motors operating across an extended temperature range Formulated for initial fill applications with extended service life 	<ul style="list-style-type: none"> Reduced vibration Lower energy consumption Extended re-lubrication intervals Suitable for extreme temperature operations, even at high speeds 	Polyurea	2	80	-40°C – +180°C	L-XDFEB 2	KP2R-40
Altis HV 1	<ul style="list-style-type: none"> Extreme-pressure grease for applications subject to moderate loads and high temperatures Recommended for the zero segment of continuous casting, pellet presses 	<ul style="list-style-type: none"> Reduced vibration Maintains performance at high temperature 	Polyurea	1	500	-20°C – +180°C	L-XBFEB 1	KP1R-20

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES

Calcium sulfonate complex



Ceran greases are high-tech products that TotalEnergies has perfected over a number of years.

They are based on a calcium complex sulfonate soap formula that offers outstanding resistance to water, wear and loading, as well as good mechanical stability.

Ceran products are suitable for heavy-load applications across an extended range of temperatures.

The **Ceran** line includes products that are the lubricants of choice for many industries around the world due to their reputation for outstanding performance, quality and reliability.

Mineral greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Ceran XM 100	<ul style="list-style-type: none"> • Extreme-pressure, heavy-duty greases for high-speed applications over a wide range of temperatures • Recommended for high-speed bearings in the pulp and paper sector • Suitable for intensive and off-road applications in civil engineering and industry 	<ul style="list-style-type: none"> • Excellent water resistance • High-speed applications • Extended re-lubrication intervals 	Calcium sulfonate complex	1.5	100	-30°C – +180°C	L-XCFIB 1/2	KP1/2R-30
 Ceran XM 220	<ul style="list-style-type: none"> • Extreme-pressure, high-performance multi-purpose grease • Recommended for lubrication in difficult industrial applications with extreme conditions (heavy load, temperature, water, dust) such as continuous casting and rolling mills in steel plants, bearings in wet and dry zones (felt rollers) in paper mills 	<ul style="list-style-type: none"> • Excellent water resistance • Heavy-load applications • Extended re-lubrication intervals • Useful for streamlining inventories 	Calcium sulfonate complex	1.5	220	-30°C – +180°C	LXCFIB 1/2	KP1/2R-30
 Ceran XM 220 Moly	<ul style="list-style-type: none"> • Extreme-pressure, high-performance multi-purpose grease for intensive automotive and industrial applications such as mining in temperate and hot zones • Recommended for applications subject to heavy loads in harsh environments (shock, water, dust) 	<ul style="list-style-type: none"> • Contains 5% MoS₂ (molybdenum disulfide) • Heavy-load applications • Outstanding water resistance • Good anti-corrosion properties 	Calcium sulfonate complex	1.5	220	-30°C – +180°C	L-XCFIB 1/2	KP1/2R-30
Ceran XM 320	<ul style="list-style-type: none"> • Extreme-pressure, high-performance multi-purpose grease designed for lubricating industrial bearings operating at high temperatures and heavy loads in wet and dry areas of paper machinery 	<ul style="list-style-type: none"> • Excellent water resistance • Heavy-load applications • Excellent anti-oxidation and anti-corrosion properties 	Calcium sulfonate complex	1.5	320	-25°C – +180°C	L-XBFIB 1/2	KP1/2R-25
Ceran XM 460	<ul style="list-style-type: none"> • Extreme-pressure, very high-performance multi-purpose grease for industrial applications subject to shock and high temperatures • Recommended lubrication for bearings in steel mills, pulp and paper production, hardwood pellet presses and all industrial applications exposed to harsh conditions (water, dust) 	<ul style="list-style-type: none"> • Excellent water resistance • Heavy-load applications • Extended re-lubrication intervals • Good anti-corrosion properties 	Calcium sulfonate complex	1.5	460	-25°C – +180°C	L-XBFIB 1/2	KP1/2R-25
Ceran XM 720	<ul style="list-style-type: none"> • Extreme-pressure, very high-performance multi-purpose grease for industrial applications subject to heavy loads and high temperatures • Recommended for intensive industrial applications (heavy loads, high temperatures, water, dust) • Specially developed for applications subject to very heavy loads, particularly in the steel industry 	<ul style="list-style-type: none"> • Excellent water resistance • Applications subject to very heavy loads • Extended re-lubrication intervals • Good anti-corrosion properties 	Calcium sulfonate complex	1.5	720	-25°C – +180°C	L-XBFHB 1/2	KP1/2R-25

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES

Calcium sulfonate complex



Synthetic greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Ceran XS 80	• Extreme-pressure, very high-performance synthetic grease designed for high-speed applications across an extended temperature range	<ul style="list-style-type: none"> • Very low temperatures • Excellent water resistance • Long service lifespan • Lower energy consumption 	Calcium sulfonate complex	1.5	80	-55°C – +180°C	L-XEFFF 1/2	KP1/2R-55
Ceran XS 320	• Extreme-pressure, very high-performance synthetic grease designed for heavy-load applications across an extended temperature range in harsh conditions		Calcium sulfonate complex	1.5	320	-40°C – +180°C	L-XDFFF 1/2	KP1/2R-40
Ceran XS 40 Moly	<ul style="list-style-type: none"> • Extreme-pressure, very high-performance synthetic grease designed for intensive-use equipment in arctic conditions • Recommended for automotive and industrial (mining) applications 	<ul style="list-style-type: none"> • Contains 5% MoS₂ (molybdenum disulfide) • Outstanding loading and shock resistance • Excellent water resistance • Suitable for very low temperatures 	Calcium sulfonate complex	1.5	40	-60°C – +180°C	L-XEFFF 1/2	KP1/2R-60

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES

Calcium sulfonate complex



Specialties

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Ceran CA	<ul style="list-style-type: none"> • Extreme-pressure semi-fluid adhesive grease for metal cables, rails, winches and chains 	<ul style="list-style-type: none"> • Outstanding water resistance • Extended service life of parts subjected to heavy loads 	Calcium sulfonate complex	0	325	-25°C – +150°C	L-XBDIB 0	OGPON-25
Ceran AD Plus	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion grease suitable for harsh conditions • Recommended for steel cables • Suitable for applications in cement plants, mines, quarries, offshore, marine 		Calcium sulfonate complex	0.5	> 1700	-20°C – +150°C	L-XBDIB 0	OGPON-20
Ceran HRM 460	<ul style="list-style-type: none"> • Multi-purpose water-resistant grease for heavy-load applications • Specially designed for the steel industry 	<ul style="list-style-type: none"> • Multi-purpose grease • Heavy loads • Resistance to wash-out • High temperatures • Corrosion protection 	Calcium sulfonate complex	2	460	-25°C – +180°C	L-XBFIB 2	KP2R-25
Ceran ST 2	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion grease, suitable for high temperatures, heavy loads and environments in which water is present • Suitable for multi-purpose applications in industry (coilers, rolling mills) and the offshore environment (cables, gear trains, eccentric bearings) 	<ul style="list-style-type: none"> • Excellent resistance to wash-out without loss of consistency • Very good adhesion to metal surfaces • Extended re-lubrication intervals 	Calcium sulfonate complex	2	180	-25°C – +180°C	L-XBFIB 2	KP2R-25
Ceran GEP	<ul style="list-style-type: none"> • Extreme-pressure semi-fluid adhesive grease, suitable for high temperatures and applications with heavy loads • Recommended for gear trains, drive trains and exposed gears in sugar cane crushers 	<ul style="list-style-type: none"> • Contains 6.5% graphite and 1% MoS₂ (molybdenum disulfide) • Good adhesion • Extended service lifespan 	Calcium sulfonate complex	0	695	-25°C – +180°C	L-XBFHB 0	OGPF0R-25
Ceran MS	<ul style="list-style-type: none"> • Extreme-pressure multi-purpose grease suitable for industrial applications subject to heavy loads and high temperatures • Recommended for applications exposed to shock with vibrations 	<ul style="list-style-type: none"> • Contains 2% MoS₂ (molybdenum disulfide) • Extended service lifespan • Very good adhesion 	Calcium sulfonate complex	1.5	650	-20°C – +180°C	L-XBFHB 1/2	KPF1/2R-20

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES

Calcium sulfonate complex



The **Nevastane XS** line is specially designed for the food industry. These high-performance products protect equipment and offer extended service life for a secure production line.

The **Nevastane XS** line is NF H1, Kosher and Halal certified. These greases are produced at ISO 21469-certified sites.

The **Nevastane XS** line includes products with a range of base oil viscosities.

Food industry									
PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS		
							REGISTRATION	ISO 6743-9	DIN 51502
Nevastane XM 460	<ul style="list-style-type: none"> High performance grease for extreme conditions (heavy loads and high temperatures) Particularly recommended for granular presses 	<ul style="list-style-type: none"> Mineral Excellent properties for resisting wear and extreme pressure Very good water resistance Excellent anti-oxidation and anti-corrosion properties High mechanical stability High temperature stability 	Calcium sulfonate complex	1.5	460	-25°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XBFIB 2	KP2R-25
Nevastane XS 80	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for high-speed and very-low-temperature applications in the agri-food industry Low-temperature bearings Kiln turbines Sterilizers Tunnel freezers 	<ul style="list-style-type: none"> Synthetic Very low temperatures Excellent water resistance Long service lifespan Lower energy consumption 	Calcium sulfonate complex	1.5	80	-55°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XEFFB 1/2	KP1/2R-55
Nevastane XS 220	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for multi-purpose applications in the agri-food industry across a wide range of temperatures Bearings subject to loads and impacts 		Calcium sulfonate complex	1.5	220	-40°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XDDIB 1/2	KP1/2R-40
Nevastane XS 320	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for applications in the agri-food industry Suitable for pellet presses Bearings subject to loads and impacts 		Calcium sulfonate complex	1.5	320	-40°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XDFFB 1/2	KP1/2R-40

*Typical kinematic viscosity of the base oil at 40°C in mm²/s

2 GREASES Calcium



Calcium soap greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Biomerkan EP 0	<ul style="list-style-type: none"> Recommended for applications in frequent contact with water, where a fluid lubricant (NLGI grade 0) is required 	<ul style="list-style-type: none"> Extreme-pressure biodegradable vegetable oil-based fluid grease Good mechanical stability and water resistance Excellent anti-corrosion properties 	Calcium	0	25	-10°C – +100°C	L-XBBEB 0	KP0G-10
Biomerkan EP 2	<ul style="list-style-type: none"> Multi-purpose grease recommended for applications in frequent contact with water 	<ul style="list-style-type: none"> Extreme-pressure biodegradable vegetable oil-based grease Good mechanical stability and water resistance Excellent anti-corrosion properties 	Calcium	2	32	-10°C – +100°C	L-XBBEB 2	KP2G-10
Biomerkan RS	<ul style="list-style-type: none"> Biodegradable water-resistant grease Recommended for marine and agricultural uses 	<ul style="list-style-type: none"> Excellent biodegradability per OECD 301-B (> 60%) Complies with BLUE ANGEL criteria Vertrag no. 11273 Good resistance to water wash-out 	Calcium	3	32	-20°C – +90°C	L-XBBEA 3	ME3E-20
Bioadhesive Plus	<ul style="list-style-type: none"> Biodegradable grease with outstanding adhesion for industrial and marine applications requiring environmentally acceptable lubricants (EALs) Recommended for waterborne applications (Galle chains) 	<ul style="list-style-type: none"> Excellent biodegradability per OECD 301-B (> 60%) EAL grease compliant with the EPA's 2013 Vessels General Permit (VGP) Insoluble in water Excellent anti-corrosion properties even in the presence of seawater 	Calcium	1	320	-20°C – +90°C	L-XBBIA 1	ME1E-20
Bio OG Plus	<ul style="list-style-type: none"> Extreme pressure, high adhesion biodegradable grease for industrial and marine applications requiring environmentally acceptable lubricants (EAL) Specially recommended for lubrication of open gear trains 	<ul style="list-style-type: none"> Excellent biodegradability per OECD 301-B (> 60%) Good resistance to water wash-out Excellent anti-corrosion properties even in the presence of seawater 	Calcium	0.5	1000	-20°C – +90°C	L-XBBIB0/1	OGE0/1E-20

Calcium complex soap greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	REGISTRATION	SPECIFICATIONS	
								ISO 6743-9	DIN 51502
Nevastane MP 1.5	<ul style="list-style-type: none"> Extreme-pressure multi-purpose grease for general lubrication Suitable for pellet presses 	<ul style="list-style-type: none"> Protects against corrosion in the presence of water Extends equipment service life Effective in humid environments 	Calcium complex	1.5	150	-20°C – +150°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XBDIB 1/2	KP1/2N-20

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



2

GREASES Special-purpose greases



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS	
							ISO 6743-9	DIN 51502
Caloris 23	• Grease suitable for high temperatures and low speeds	• Resistant to acidic and alkaline atmospheres	Bentone	2.5	500	-15°C – +160°C	L-XAEEA 2/3	M2/3P-15
Caloris MS 23	• Grease suitable for high temperatures, low speeds, heavy loads and shock-prone environments	• Contains 1% MoS ₂ (molybdenum disulfide) • Resistant to acidic and alkaline atmospheres	Bentone	2.5	500	-15°C – +160°C	L-XAEEA 2/3	MF2/3P-15
Marson SY 00	• Synthetic grease suitable for heavy loads applications • For worm gears, enclosed gear trains and recessed mechanisms	• Contains PAG base oil • Low friction coefficient • Long service lifespan	Lithium	00	145	-35°C – +130°C	L-XCCEB 00	GPGP00K-35
Marson SY 2	• Synthetic grease suitable for heavy loads applications • Recommended for applications in contact with liquid petroleum distributors	• Contains PAG base oils • Resistant to hydrocarbon wash-out	Lithium	2	145	-40°C – +120°C	L-XDCEA 2	MPPG2K-40
Specis CU	• Anti-seize grease for threaded assemblies subject to severe corrosion conditions, water vapor, gases	• Contains a copper additive • Anti-seize properties • Easy disassembly of components in a wet or humid atmosphere	Bentone	1	500	-20°C – +300°C	L-XBGBB 1	MPF1U-20
NSF Axa GA 3	• Grease for pressurized or vacuum-sealed autoclave seals, particularly in the chemical industry	• Extends equipment service life • Helps make equipment airtight • NSF H1	Calcium	3	69	0°C – +100°C	L-XABGA 3	K3G 0
Statermic XHT	• Special grease based on fluorinated compounds for very high temperatures and medium to heavy loads	• Reduced friction coefficient for most plastics and metals • Extends service life of lubricated parts	Fluorine	2	150	-25°C – +250°C	L-XBGDB 2	KFKP2U-25
NSF Statermic NR	• Special grease based on fluorinated compounds for high temperatures, resistant to strong acids, halogenated compounds, alcohols, oxidizing agents and radiation	• Protects lubricated parts even in the presence of acids and resistant to halogenated alcohols, oxidizing agents and radiation • NSF H1	Fluorine	2	375	-25°C – +250°C	L-XBGDB 2	KFKP2U-25

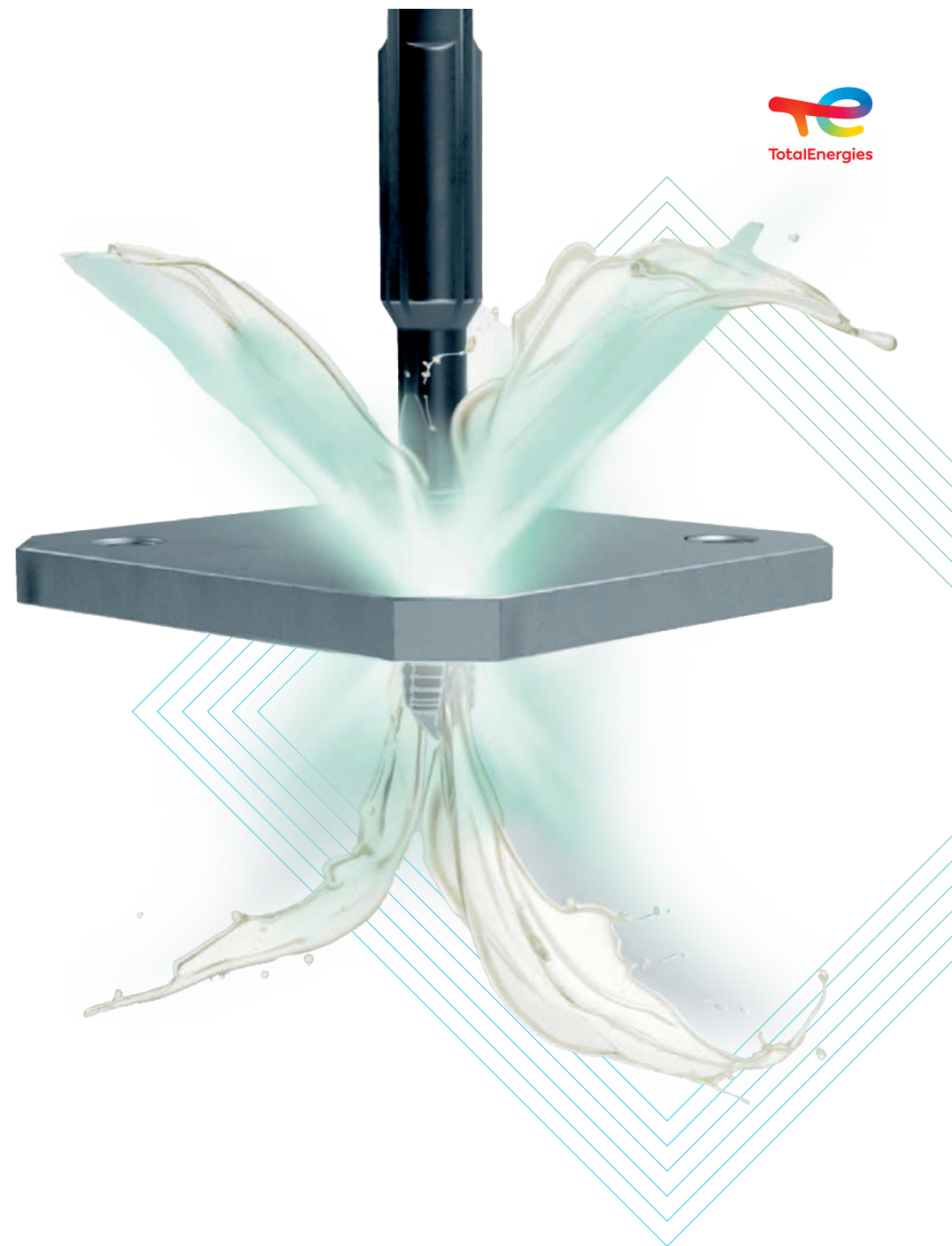
*Typical kinematic viscosity of the base oil at 40°C in mm²/s



3

Metalworking

Innovative fluid technology	49
Aqueous cutting fluids	51
Whole cutting oils	53
Circulating oils	56
Quenching oils	58
EDM fluids	59
Post-treatment additives	60
Protective oils	61
Machine-tool lubrication	62



3

METALWORKING Innovative fluid technology



The **Folia** product line represents a revolution in the field of metalworking. It is a water-soluble fluid, with no oils or emulsifiers, formulated from a biopolymer.

Boasting high lubricity and excellent cooling power, **Folia** offers an all-in-one solution for many metalworking tasks.

◆ HEALTH



- Less hazardous substances
- Boron-free technology
- Fewer pictograms on the material safety data sheet

◆ SAFETY



- Reduces odors
- Reduces the risk of dermatosis
- Reduces oil mist
- Cleaner work environment

◆ PERFORMANCE



- Extends service life of tools
- Increases oil drain intervals
- Lower oil consumption
- Leads to gains in productivity

OUR LUBRICANTS PROTECT FAR MORE THAN YOUR TOOLS

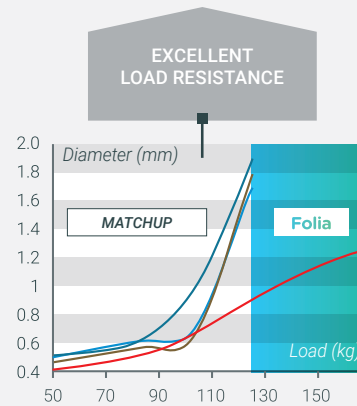
◆ APPEARANCE



Comparison of Folia's appearance with that of a soluble oil after machining.

◆ FOUR-MARBLE TEST ASTM: D2783

When immersed in **Folia**, the four marbles do not fuse together even under a heavy load, and their wear diameter remains minimal. This unique feature not only yields significant savings on tools but also ensures that **Folia** can be used for a wide range of applications, from cutting to forming, where whole cutting oils are typically used.



3

METALWORKING Innovative fluid technology



Cost savings



Eco-friendly



Increased productivity



More satisfied operators



Less maintenance

Drawing on innovative technology, we are introducing the first and only fluid for metalworking, one that replaces conventional oils with bio-based polymers and offers the best results for both operators and their environment.

◆ MULTI-FUNCTIONAL PRODUCT



Folia											
PRODUCT	MATERIALS							APPLICATIONS			
	Aluminum (If > 7%)	Copper alloys	Carbon steels	Cast iron	Carbides	Stainless steels	Inconel & titanium alloys	Rectification	Milling, sawing, turning, threading	Drilling, boring, tapping	Broaching, stamping
Folia A 7000
Folia B 7000 D
Folia G 5000
Folia V 7000*
Folia W 7000	

*Biocide-free

Key: • Possible •• Suitable ••• Recommended

3

METALWORKING Aqueous cutting fluids



All our aqueous fluids are formulated to achieve the highest level of technology for your industrial applications, while being as safe for your operators as possible. They do not contain either boric acid or formaldehyde.

TotalEnergies Lubrificants offers a wide range of aqueous fluids: **Lactuca** (macro-emulsions), **Spirit** (micro-emulsions), **Vulsol** (synthetic).

The new **Spirit X** line offers X-TRA safe performance = X-TRA care for you and your operations.

Spirit												
PRODUCT	MATERIALS							MACHINING OPERATIONS				HSE PROFILE
	Cast iron	Low- and medium-alloyed steels	High-alloyed and stainless steel	Titanium	Aluminum alloys (If > 7%)	Aluminum alloys (If < 7%)	Yellow metals	Rectification	Mild machining	Severe machining	Very severe machining	
Spirit 5000 X	+++
Spirit 7000 X	+++
Spirit 3000		++
Spirit 5000	++
Spirit 7000	++
Spirit 5000 F	+
Spirit WBA 5600	++
Spirit WBF 7200	++

WBA Boron- and amine-free
WBF Boron- and formaldehyde-free

Key: • Possible •• Suitable ••• Recommended

3

METALWORKING Aqueous cutting fluids



Lactuca / Vulsol

PRODUCT	MATERIALS							MACHINING OPERATIONS				HSE PROFILE
	Cast iron	Low- and medium-alloyed steels	High-alloyed and stainless steel	Titanium	Aluminum alloys (lf > 7%)	Aluminum alloys (lf < 7%)	Yellow metals	Rectification	Mild machining	Severe machining	Very severe machining	
Lactuca LT 3000	•	•••	••		•		•••		•••	•••		++
Lactuca WBF 9400	•	•••	•••	•	••		••		•••	•••	••	++
Vulsol MSF 5200	••	•••	•					•••	•			++
Vulsol MSF 7500	••	•••	••	•				•••	••	•		++
Vulsol WBF 7219	••	•••	••	•				•••	••	•		++

LT Brass
WBF Boron- and formaldehyde-free
MSF Multi-service and formaldehyde-free

Key: • Possible •• Suitable ••• Recommended

3

METALWORKING Whole cutting oils



Valona cutting oils cover a wide range of light to severe machining operations on various materials, and offer innovations in the areas of health, safety and the environment.

The **Valona HC** product line consists of advanced mineral base oils. These oils undergo severe refining that modifies the nature of the molecules and makes them:

◆ **Safe/easy to use:**

- Odorless
- Transparent
- Low in PAHs*
- Low evaporation

◆ **High-performance:**

- Low-mist
- Low-foam
- Lower consumption
- Extended service life

The **Valona HC** product line consists exclusively of hydrocracked oils with Benzopyrene (BAP)** content below detection thresholds.

Valona HC										
PRODUCT	MATERIALS					MACHINING OPERATIONS				SPECIFICATIONS
	Yellow metals	Aluminum	Steel	Stainless steel	Carbide	Running-in	Rectification	Severe machining	Very severe machining	
Valona GR 3008 HC			8
Valona GR 5005 HC		5
Valona GR 7007 HC		8
Valona GR 7012 HC		14
Valona GR 9005 HC			6
Valona MS 5515 HC			15
Valona MS 5020 HC		22
Valona MS5032HC****		33

*Polycyclic Aromatic Hydrocarbons (PAHs) **Benzopyrene is a molecule belonging to the PAH family, classified as a carcinogen ***Typical kinematic viscosity at 40°C in mm²/s ****Can be used to lubricate machine tools

GR Rectification and sharpening
MS Machining of ferrous and non-ferrous metals

Key: • Possible •• Suitable ••• Recommended

3

METALWORKING Whole cutting oils



Valona HC

PRODUCT	MATERIALS					MACHINING OPERATIONS				SPECIFICATIONS
	Yellow metals	Aluminum	Steel	Stainless steel	Carbide	Running-in	Rectification	Severe machining	Very severe machining	Viscosity*
Valona MS 7009 HC	•	10
Valona MS 7023 HC	•	23
Valona MS 7116 HC	•	15
Valona MS 7046 HC**		43
Valona ST 9013 HC		•	13
Valona ST 9037 HC		•	42
Valona ST 9122 HC		•	22
Valona BR 9015 HC					•	15

*Typical kinematic viscosity at 40°C in mm²/s **Can be used to lubricate machine tools

- MS** Machining of ferrous and non-ferrous metals
- ST** Machining of soft and high-alloy steels
- BR** Broaching

Key: • Possible .. Suitable ... Recommended



3

METALWORKING Whole cutting oils

Valona Bio is a 100% biodegradable synthetic product with a vegetable oil base. Free of polycyclic aromatic hydrocarbons and benzoapyrene molecules, **Valona Bio** is the ideal solution to meet all your requirements.

Valona Bio can be used in small quantities for micro-quantity lubrication (MQL).

Valona MQL can be used in small quantities for lubrication, covering easy to severe machining operations on various metals.

Valona MQL whole cutting oils ensure:

- Lower oil consumption
- Greater productivity and lower production costs
- Greater value from metal chips



Valona Bio / Valona MQL

PRODUCT	MATERIALS					MACHINING OPERATIONS				SPECIFICATIONS
	Yellow metals	Aluminum	Steel	Stainless steel	Carbide	Running-in	Rectification	Severe machining	Very severe machining	
Valona GR 7007 Bio			7
Valona MS 7010 Bio		9
Valona MS 7016 Bio		15
Valona MS 7022 Bio	•	25
Valona MQL 3036 Bio	•				36
Valona MQL 3046	•				46
Valona MQL 5035	•	35

*Typical kinematic viscosity at 40°C in mm²/s

GR Rectification and sharpening
MS Machining of ferrous and non-ferrous metals
MQL Micro-lubrication

Key: • Possible •• Suitable ••• Recommended

3

METALWORKING Circulating oils

The **Martol** product line offers versatility and innovative products for cold deformation operations of metals that require enhanced lubrication. The benefits include:

◆ Reduced VOC emissions and improved air quality

- ◆ Minimal or no degreasing after a stamping operation
- ◆ Improved forming capacity for rigorous processes
- ◆ Longer tool life and higher production rates
- ◆ Lower oil consumption



Whole oils

PRODUCT	MATERIALS					DEFORMATIONS				SPECIFICATIONS	
	Stainless steel	Steel, galvanized steel	Aluminum	Copper	Thickness (mm)	Pressing	Deep drawing	Wire drawing	Stamping/Punching/Cutting	Flash point (°C)	Viscosity*
Martol AL 150			...	•	≤ 100	••	> 180	147
Martol AL 60			...	•	≤ 10	...		••	...	> 180	55
Martol AL 20 HC			...	•	≤ 1	...		•	••	> 180	25
Martol EP 405 CF	•••	•••	•		≤ 10	•••	•••		••	> 180	400
Martol EP 235 CF	••	••	•		≤ 8	•••	•••		••	> 180	230
Martol EP 100 CF	••	••	•		≤ 5	••			••	> 180	101
Martol EP 65 CF	••	••	•		≤ 3	••			•••	> 180	60
Martol EP 5 CF	••	••	••		≤ 2	•			••	94	3
Martol EP 185**	•••	••	••	•	10 – 100	•••	•••		•••	> 180	175
Martol EP 79**	•••	••	••	•	1 – 10	•••	•••		••	> 180	78

*Typical kinematic viscosity at 40°C in mm²/s **Non-toxic per 1999/45/EC standard

AL Aluminium
EP Extreme Pressure

Key: • Possible •• Suitable ••• Recommended



3

METALWORKING Circulating oils



Evanescent oils

PRODUCT	MATERIALS					DEFORMATIONS				SPECIFICATIONS	
	Stainless steel	Steel, galvanized steel	Aluminum	Copper	Thickness (mm)	Pressing	Deep drawing	Wire drawing	Stamping/Punching/Cutting	Flash point (°C)	Viscosity*
Martol EV 45	•	•	•••	•	< 4	•			•••	62.5	2.1
Martol EV 40 CF		•	•••	•	< 4	•			•••	59.5	1.5
Martol EV 10 AQ		•	•••	•	< 2	•			•••	104	2.5
Martol EV 10 CF		•	•••	•	< 1.5	•			•••	58.5	1.3
Martol LVG 25 AQ**		••	•••	•	< 2	••			••	105	2.8
Martol LVG 25 CF**		••	•••	•	< 2	••			••	74	1.7
Martol LVG 15 CF**		••	•••	•	< 1	••			••	59	1.3

EV Evanescent
LVG Thermally degreasable

Oils for food contact

PRODUCT	MATERIALS					DEFORMATIONS				SPECIFICATIONS	
	Stainless steel	Steel, galvanized steel	Aluminum	Copper	Thickness (mm)	Pressing	Deep drawing	Wire drawing	Stamping/Punching/Cutting	Flash point (°C)	Viscosity*
Martol FMO 235 CF			•••			•••	•••		•••	270	235
Martol FMO 75 CF			•••			•••	••		•••	256	75
Martol FMO 15 CF			•••			•••			•••	240	15

*Typical kinematic viscosity at 40°C in mm²/s **Oils and additives can be removed following an increase in temperature (brazing, annealing, etc.)

Key: • Possible •• Suitable ••• Recommended



3

METALWORKING Quenching oils



Drasta quenching oils offer a solution for all heat treatment needs and any type of facility. Formulated from base oils selected for their exceptional oxidation resistance, these oils can be used to improve the mechanical properties of your components at a lower cost.

Drasta C oils are cold quenching oils based on technology that reduces odors and raises the flash point to lower the risk of fire. Their very low volatility reduces evaporative losses, for greater user convenience users.

Their strong oxidation resistance extends the lifetime of the oil.

Drasta C oils are suited for all heat treatment needs.

Drasta H are hot quenching oils specially formulated to ensure a longer service life.

Drasta				
PRODUCT	QUENCHING TEMPERATURE (°C)	MAXIMUM COOLING SPEED (°C/S)	FLASH POINT (°C)	APPLICATIONS
Drasta C 1022	20-80	53	230	• Steel hardening with high quenching capacity (torsion rods, springs)
Drasta C 5022	20-80	90	222	• Screws and bolts
Drasta C 7025	20-80	102	228	• Steels with initially high martensite content (sheet rolls)
Drasta C 9022	20-80	113	232	• Steels with initially low martensite content (bearings)
Drasta H 5160	120-160	91	282	• Gears



3

METALWORKING EDM fluids

The **Diel** product line consists of multi-service fluids for spark erosion, from roughing to finishing.

Diel fluids are formulated from refined base oils and comply with health, safety and environmental regulations.

Diel EDM fluids also comply with European Union directives on VOC emissions.

Diel fluids offer:

- ◆ Extended bath life due to high oxidation resistance.
- ◆ Reduced risk of fire thanks to a high flash point.
- ◆ Safer use of the fluid, thanks to a very low aromatic content.



EDM				
PRODUCT	APPLICATIONS	APPROVALS	SPECIFICATIONS	
			Viscosity*	Classifications
Diel MS 5000	• Roughing and semi-finishing	• Agie-Charmilles, Krupp-Nassovia	3.9	• ISO-L-MHA
Diel MS 7000	• Semi-finishing and finishing work for complex forms and precise dimensions	• Agie-Charmilles, Ona, Zimmer & Klein, Nassovia, Waldrich Siegen	2.4	• ISO-L-MHA, NADCAP (DMP66)
Diel MS 9000	• Finishing work on parts with difficult shapes and especially precise dimensions	• Agie-Charmilles, Zimmer & Klein, Nassovia, Waldrich Siegen	1.8	• ISO-L-MHA, NADCAP (DMP66)

*Typical kinematic viscosity at 40°C in mm²/s

MS Machining of ferrous and non-ferrous metals



3

METALWORKING Post-treatment additives



The **Serade** product line consists of performance additives.

When used at the right time, on the recommendation of your technical advisor, these additives will help you extend the service life of your soluble baths.

The soluble LubAnac service can analyze your lubricant.

It provides you with an analysis report that profiles your lubricants so you can make better use of our **Serade** line of products as needed.

Post-treatment additives		
PRODUCT	APPLICATIONS	FUNCTIONS
Serade System Cleaner	• Detergent for machine tools	• Cleans the machinery prior to an oil change
Serade Antifoam SF (silicone-free version)	• Anti-foaming agent for synthetic soluble emulsions and fluids	• Prevents foaming
Serade ACR Ferrous	• Corrosion inhibitors for ferrous metals	• Prevents corrosion of ferrous metals
Serade ACR Non-Ferrous	• Corrosion inhibitors for non-ferrous metals	• Prevents corrosion of non-ferrous metals
Serade WQ Minus	• An additive for reducing water hardness	• Prevents the formation of white deposits from excessively hard water
Serade WQ Plus	• An additive for increasing water hardness	• Prevents foaming due to soft water
Serade WQ Buffer	• Additive for increasing pH	• Extends the life of the bath
Serade AW Emulsion	• Anti-wear agent for emulsions	• Reduces friction wear
Serade AW Synthetic	• Anti-wear agent for synthetic oil	• Reduces friction wear
Serade STAB Emulsion	• Stabilizing additive for emulsions	• For use in cases of severe contamination with grease or oil (e.g., quenching oil)
Serade STAB Synthetic	• Stabilizing additive for synthetic fluids	• For use in cases of severe contamination with grease or oil (e.g., quenching oil)

The product data sheets and your consulting technician can help you determine the right concentration of **Serade** post-treatment additives for your situation.

3

METALWORKING Protective oils

Osyris oils are designed to protect parts from the risk of corrosion during storage and transportation. TotalEnergies offers a wide range of products of different types (oily, waxy or varnish) to create a protective film tailored to your needs.

Osyris can be:

- ◆ Applied to all ferrous metals, from cast iron to various steel alloys
- ◆ Applied by dipping, spraying or brush
- ◆ Disposed of using alkaline solvents and cleaners



Osyris											
PRODUCT	TYPE OF FILM			BARRIER				PRODUCT TYPE			FLASH POINT (°C)
	Oily	Waxy	Varnish	< 6 months	6-8 months	8-12 months	> 18 months	Oil	Solvent	Water	
Osyris Y 1000	•			•				•			> 150
Osyris Y 4000	•				•			•			> 150
Osyris Y 5000	•					•		•			> 150
Osyris DWX 3000		•			•				•		< 60
Osyris DWY 4000		•			•				•		> 60
Osyris DWY 5000		•				•			•		> 60
Osyris DWL 3550	•				•				•		> 60
Osyris WB 5000	•				•					•	NA
Osyris X 9100			•				•		•		< 60

- X** Solvent-based
- Y** Oil-based
- DWX** Dewatering & flash point < 60°C
- DWY** Dewatering & flash point > 60°C
- DWL** Dewatering & flash point > 60°C & faint odor



3

METALWORKING Machine-tool lubrication



The **Drosera** product line includes products for lubricating all machine tool parts (hydraulics, slideways, gears).

- ◆ Machine spindles: high-speed (viscosities 5, 10, 15 and 22) and very-high-speed (viscosities 2).
- ◆ Machine tool slideways in any speed and load conditions (viscosities 68 to 320).
- ◆ Hydraulic circuits for hydraulic pumps and motors (viscosities 32 and 46).
- ◆ Gearboxes and power supply mechanisms of all types, with or without wet electromagnetic clutches (viscosities 68 to 320).
- ◆ Hydrodynamic lubrication of rolling mill supports during rectification (viscosities 460).

Drosera oils offer the following benefits:

- ◆ Very low friction coefficient
- ◆ Anti-fogging properties
- ◆ Very good foaming resistance
- ◆ Excellent oxidation resistance
- ◆ Very good protection against rust
- ◆ Very good anti-wear properties
- ◆ Good filtrability

Slideway oils

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	SPECIFICATIONS	
			Viscosity*	Classifications
Drosera MS	• Slideway oils for high-speed lubrication of spindle mechanisms	• Broaching at high speeds (viscosities at 5, 10, 15 and 22) and very high speeds (viscosity 2)	2, 5, 10, 15, 22	• ISO 6743-2: FD 2-5-10-15-22

Multi-purpose oils (hydraulics, slideways, gears)

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	SPECIFICATIONS	
			Viscosity*	Classifications
Drosera MS	• Multi-purpose product line for all machine tool components based on lubricant viscosity: hydraulics, slideways, gears, spindle movements, feed and gear box	• Wide range of applications	32, 46, 68, 100, 150, 220, 320, 460	Based on viscosities: • ISO 6743-4: HG 32 • ISO 6743-13: GA 68-100-150-220 • DIN 51502: CGLP 46-68-100-150-220-320-460
Drosera HXE 68	• Oil for slideways including synthetic resin coatings, feed and speed box	• Compatible with cutting oils, including soluble oils	68	• ISO 6743-13: GB 68 • DIN 51524 Part 2: HLP 68 • DIN 51517 Part 3: CLP 68 • DIN 51502: CGLP 68
Drosera HXE 220	• Oil for slideways including synthetic resin coatings, feed and speed box	• Compatible with cutting oils, including soluble oils	220	• ISO 6743-13: GB 220 • DIN 51502: CGLP 220 • DIN 51517 Part 3: CLP 220

*Typical kinematic viscosity at 40°C in mm²/s

MS Machining of ferrous and non-ferrous metals



4

Nevastane

Oils	64
Greases	65
Special-purpose products	66
Spray	67



Nonfood Compounds
Program Listed
ISO 21469 Certified



4

NEVASTANE

The **Nevastane** product line is specifically designed for the food industry and related activities such as package manufacturing. It is also used in the pharmaceutical and cosmetics industries.







All **Nevastane** products are NSF H1 certified. Their use is essential when a high level of hygiene is needed, in accordance with the HACCP method.

These high-performance products protect equipment and offer extended service life for a secure production line.

Numerous products in the **Nevastane** line are produced at an ISO 21469 site, further proof that TotalEnergies follows the strictest hygiene standards to produce NSF H1 lubricants.



Oils









PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	SPECIFICATIONS
 Nevastane AW	• White mineral oil	• Hydraulic systems • Air duct lubricators	• Very strong ability to protect equipment • Extended equipment service life • Good miscibility with mineral fluids	22 – 68	• NSF H1 • ISO 21469 • ISO 6743-4 HM • KOSHER • HALAL
 Nevastane SH	• Synthetic oil (PAO)	• Air compressor • Vacuum pumps • Hydraulic systems, particularly those operating at low temperatures	• Extended range of operating temperatures • Excellent equipment protection • Extended oil change intervals • High viscosity index	32 – 100	• NSF H1 • ISO 21469 • ISO 6743-4 HV • KOSHER • HALAL
 Nevastane EP	• Semi-synthetic oil	• Gears • Plain and rolling bearings • Conveyor belts and chains	• Superior protection against heavy loads • Suitable for a wide range of applications	100 – 1000	• NSF H1 • ISO 21469 • ISO 6743-6 CKD • KOSHER • HALAL
 Nevastane XSH	• Synthetic oil (PAO)	• Gears • Plain and rolling bearings • Conveyor belts and chains • Slideways	• Extended range of operating temperatures • Low temperature start • Excellent equipment protection • Extended oil change intervals • Heavy loads	150 – 460	• NSF H1 • ISO 21469 • ISO 6743-6 CKD • KOSHER • HALAL
 Nevastane SY	• Synthetic oil (PAG)	• High-temperature oven chains • Bottling equipment • Worm gears	• Excellent thermal stability • Heavy loads • Extended oil change intervals • Impressive properties under extreme pressure	220 – 460	• NSF H1 • ISO 21469 • KOSHER • HALAL
 Nevastane Chain Oil XT	• Synthetic oil (ester)	• Conveyor belts and chains • Oven chains • Mechanisms that run at high temperatures	• Very good thermal stability • Low volatility • High lubricity • Excellent adhesion properties	220	• NSF H1 • KOSHER • HALAL

4

NEVASTANE



Greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS		
							REGISTRATION	ISO 6743-9	DIN 51502
 Nevastane XMF 00	<ul style="list-style-type: none"> • Extreme-pressure, adhesive multi-purpose grease • Suitable for medium- to high-speed stages in the food industry • Roller bearings and plain bearings • Crimpers 	<ul style="list-style-type: none"> • Good adhesion to metal surfaces • Provides excellent corrosion protection and good water resistance 	Aluminium complex	00	120	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBDFA00	K00N-20
 Nevastane XMF 0				0				L-XBDFA0	K0N-20
 Nevastane XMF 1				1				L-FXBDFB1	KP1N-20
 Nevastane XMF 2				2				L-XBDFB2	KP2N-20
 Nevastane 2 Plus	<ul style="list-style-type: none"> • Extreme-pressure, high-adhesion multi-purpose grease • Suitable for agri-food application when high adhesiveness is required • Roller bearings and plain bearings – medium- and high-speed • Crimpers 	<ul style="list-style-type: none"> • Excellent adhesiveness • Provides excellent corrosion protection and water resistance 	Aluminium complex	2	150	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBFFA2	KP2R-20
 Nevastane HD2T	<ul style="list-style-type: none"> • Extreme-pressure multi-purpose tacky grease, for food processing in the presence of water • Suitable for loaded bearings, bottlers and crimpers 	<ul style="list-style-type: none"> • Contains PTFE additives • Exceptional grip on metal surfaces • Good resistance to water wash-out • Excellent protection against wear • Low friction coefficient 	Aluminium complex	2	150	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBDFB2	KP2N-20
 Nevastane MP 1.5	<ul style="list-style-type: none"> • Extreme-pressure multi-purpose grease, for bearings in the agri-food industry • Suitable for pellet presses 	<ul style="list-style-type: none"> • Protects against corrosion in the presence of water • Extends equipment service life • Effective in humid environments 	Calcium complex	1.5	150	-20°C – +150°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBDIB 1/2	KP1/2N-20
 Nevastane XM 460	<ul style="list-style-type: none"> • High performance grease for extreme conditions (heavy loads and high temperatures) • Particularly recommended for granular presses 	<ul style="list-style-type: none"> • Very good water resistance • High mechanical stability • High temperature stability 	Calcium sulfonate complex	1.5	460	-25°C – +180°C	<ul style="list-style-type: none"> • NSF H1 • ISO 21469 • KOSHER • HALAL 	L-XBFIB 2	KP2R-25

*Typical kinematic viscosity of the base oil at 40°C in mm²/s






4




NEVASTANE



Greases

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	THICKENER	NLGI GRADE	VISCOSITY* OF BO	OPERATING TEMPERATURES	SPECIFICATIONS		
							REGISTRATION	ISO 6743-9	DIN 51502
 Nevastane XS 80	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for high-speed and very-low-temperature applications in the agri-food industry Low-temperature bearings Kiln turbines Sterilizers Tunnel freezers 	<ul style="list-style-type: none"> Very low temperatures Excellent water resistance Long service lifespan Lower energy consumption 	Calcium sulfonate complex	1.5	80	-55°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XEFFB 1/2	KP1/2R-55
 Nevastane XS 220	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for multi-purpose applications in the agri-food industry across a wide range of temperatures Suitable for bearings subject to loads and impacts 		Calcium sulfonate complex	1.5	220	-40°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XDDIB 1/2	KP1/2R-40
 Nevastane XS 320	<ul style="list-style-type: none"> Synthetic grease with ultra-high-performance under extreme pressure, for heavy-load applications in the agri-food industry Suitable for pellet presses Suitable for bearings subject to loads and impacts 		Calcium sulfonate complex	1.5	320	-40°C – +180°C	<ul style="list-style-type: none"> NSF H1 ISO 21469 KOSHER HALAL 	L-XDFFB 1/2	KP1/2R-40

Special-purpose products

PRODUCT	NATURE	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	SPECIFICATIONS
 Nevastane SDO	• Sugar dissolving oil	<ul style="list-style-type: none"> Dissolves accumulated sugar on equipment in production and packaging areas Can be applied in pure or diluted form 	<ul style="list-style-type: none"> Excellent for dissolving sugar that has accumulated on machine parts Able to remove dirt Reduces maintenance costs and downtime 		• NSF H1
 Nevastane Antifreeze	• Monopropylene glycol (MPG)-base antifreeze	• Cooling circuits, including beverages, ice cream and processing of frozen foods	• Specifically protects metal alloys and equipment against corrosion		• NSF H1
 Nevastane HTF	• White mineral oil	<ul style="list-style-type: none"> Closed circuits without air contact Numerous manufacturing processes in the agri-food industry: water baths, autoclaves, reactors, heaters, presses and molds 	• Treatment temperature < +310°C (+330°C in film)	32	<ul style="list-style-type: none"> NSF H1 ISO 21469 ISO 6743-12 L -QC KOSHER HALAL









*Typical kinematic viscosity of the base oil at 40°C in mm²/s

4

NEVASTANE



Spray

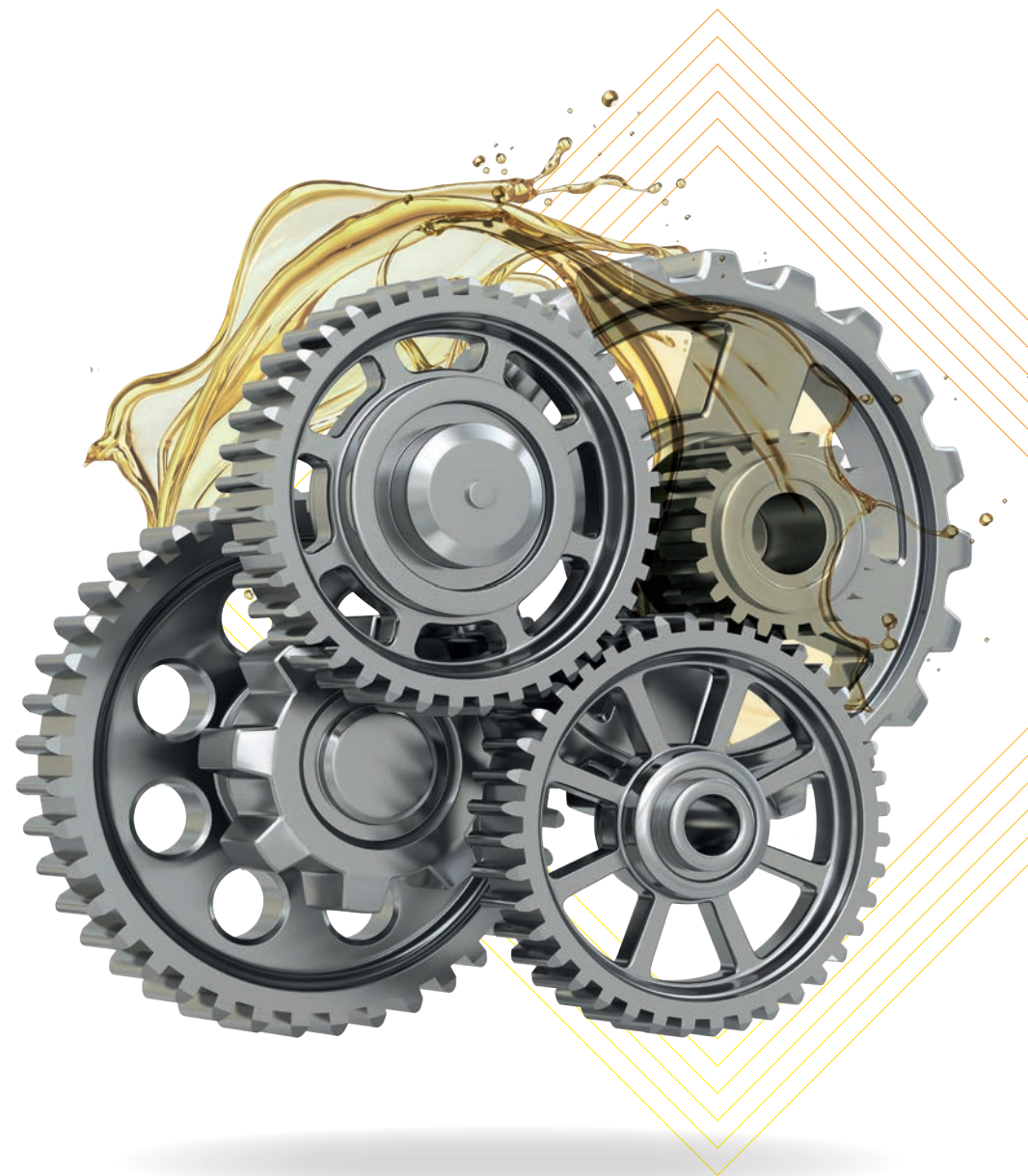
PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	TEMPERATURE	REGISTRATION
 Nevastane Lube Spray	• Multi-purpose lubricant for daily lubrication	• Resistance to wash-out • Antioxidant properties	-20°C – +140°C	• NSF H1
 Nevastane Grease Spray	• Bearings, hinges, springs, chains, tools	• Excellent adhesion to metal surfaces • Resistance to wash-out • Extreme pressure properties • Anti-corrosion	-20°C – +150°C	• NSF H1
 Nevastane XS 220 Spray	• Multi-purpose grease for all applications in harsh conditions	• Resistant to extreme temperatures, moisture and chemicals • Synthetic	-35°C – +160°C	• NSF H1
 Nevastane PTFE Grease Spray	• Universal PTFE grease • Long-term lubrication of moving parts subject to significant shear or vibration (gears, pumps, valves, etc.)	• Contains a high level of solid PTFE additives • For all surfaces • No residues or deposits	-10°C – +180°C	• NSF H1
 Nevastane Chain Oil Spray	• Chains, conveyors, small mechanisms	• Tacky, adhesive oil • High penetration power • Extreme-pressure and anti-wear properties • Resistance to wash-out	-30°C – +150°C	• NSF H1
 Nevastane Silicone Spray	• Chains, conveyors, rails	• Creates a protective silicone film • Lubricant • Release agent • Anti-static • Hydrophobic	-60°C – +230°C	• NSF H1
 Nevastane Penetrating Oil Spray	• Multi-purpose fluid for releasing jammed mechanisms under harsh conditions	• Anti-corrosion, anti-oxidant and anti-seizure properties • Lubricant • Hydrophobic	Room temperature	• NSF H1
 Nevastane Degreaser Spray	• Multi-purpose cleaning/degreasing agent	• Excellent solvent power • Evaporates rapidly • Free of chlorinated, brominated or aromatic compounds	Room temperature	• NSF K1



5

Lubrication for Open Gear Trains

Extreme-pressure greases	69
High-viscosity transparent oils	71
High-viscosity compounds supplemented with white solid particles	72
Cleaning	72



5

LUBRICATION FOR OPEN GEAR TRAINS Extreme-pressure greases



Grafolog is a line of greases containing an aluminum complex thickener and black solid particles to optimize product performance under extreme pressure, and ensures the active flanks of the gear teeth are appropriately protected.

These products apply a strong lubricating film that adheres well to metal surfaces.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	NLGI GRADE	METHOD OF APPLICATION
Grafolog H 10 K	<ul style="list-style-type: none"> Lubrication of open gear trains in a variety of industries Ideal for applications at very low speeds and/or very high temperatures 	<ul style="list-style-type: none"> No heavy metals or bitumen 	10000	0-00	• Spray
Grafolog MT Fluid	<ul style="list-style-type: none"> Lubrication of open gear trains in a variety of industries, via oil bath or lubrication circuit 	<ul style="list-style-type: none"> Liquid grease Very good adhesion 	7500	000	• Oil bath and lubrication circuit
Grafolog H 6000	<ul style="list-style-type: none"> Lubrication of open gear trains in a variety of industries, via manual or automatic spray lubrication 	<ul style="list-style-type: none"> Liquid grease High anti-seize resistance, even at high temperatures and low speeds 	6000	0-00	• Spray
Grafolog M Fluid	<ul style="list-style-type: none"> Lubrication of open gear trains in a variety of industries, via oil bath or lubrication circuit 	<ul style="list-style-type: none"> Liquid grease Very good adhesion 	3000	000	• Oil bath and lubrication circuit
Grafolog H 2200	<ul style="list-style-type: none"> Lubrication of open gear trains in a variety of industries, via manual or automatic spray lubrication 	<ul style="list-style-type: none"> Liquid grease High anti-seize resistance, even at high temperatures and low speeds 	2200	0-00	• Spray
Grafolog R Fluid	<ul style="list-style-type: none"> Liquid grease with special additives to generate a physical-chemical reaction, necessary when running in metal parts Causes slight mechanical abrasion and surface microfluidization which combines with a chemical reaction to remove steel from zones where pressure and temperature are abnormally high 	<ul style="list-style-type: none"> Use whenever the gear profile needs to be adjusted (in new gear trains or to prevent seizing) 	2000	00	• Oil bath and lubrication circuit

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



5

LUBRICATION FOR OPEN GEAR TRAINS Extreme-pressure greases



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	NLGI GRADE	METHOD OF APPLICATION
Grafolog H 1	<ul style="list-style-type: none"> • Ideal for open gear trains, drives and cables subject to wear 	<ul style="list-style-type: none"> • Very good performance under extreme pressure • Enhanced effectiveness due to good adhesion to metal surfaces 	1100	1	• Brush
Grafolog H 0+	<ul style="list-style-type: none"> • Lubrication of very high-power open gear trains in the cement, steel, chemical and other industries 	<ul style="list-style-type: none"> • High content of very fine natural graphite • Good adhesion • Resistant to loads 	1100	0/1	• Spray
Grafolog H 0	<ul style="list-style-type: none"> • Lubrication of very high-power open gear trains in the cement, steel, chemical and other industries 	<ul style="list-style-type: none"> • High content of very fine natural graphite • Good adhesion • Resistant to loads 	750	0	• Spray
Grafolog H 00 R	<ul style="list-style-type: none"> • Liquid grease with special additives to generate a physico-chemical reaction, necessary when running in metal parts • Causes slight mechanical abrasion and surface microfluidization which combines with a chemical reaction to remove steel from zones where pressure and temperature are abnormally high 	<ul style="list-style-type: none"> • Use whenever the gear profile needs to be adjusted (in new gear trains or to prevent seizing) 	320	00	• Spray
Grafolog H 00 LT	<ul style="list-style-type: none"> • Lubrication of very high-power open gear trains in the cement, steel, chemical and other industries 	<ul style="list-style-type: none"> • High content of very fine natural graphite • Good adhesion • Recommended for use at low temperatures 	130	00	• Spray

*Typical kinematic viscosity of the base oil at 40°C in mm²/s



5

LUBRICATION FOR OPEN GEAR TRAINS High-viscosity transparent oils



Gear Fluid is a line of high-viscosity transparent oils. These oils adhere very well to the active flanks of open gear trains.

Since these oils are transparent, it's very easy to inspect the active flanks without having to clean the gear train.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	METHOD OF APPLICATION
Gear Fluid 1000	• Recommended for lubrication of open gear trains with speeds up to 10 m/s and power ratings over 2 x 5000 kW	<ul style="list-style-type: none"> • Semi-synthetic oil • High viscosity at all temperatures • Outstanding performance at extreme pressure • Free of solvents, bitumen, chlorine, heavy metals and solid particles 	25000	• Oil bath
Gear Fluid 550	• Recommended for lubrication of open gear trains with speeds up to 10 m/s and power ratings over 2 x 5000 kW	<ul style="list-style-type: none"> • Semi-synthetic oil • High viscosity at all temperatures • Outstanding performance at extreme pressure • Free of solvents, bitumen, chlorine, heavy metals and solid particles 	17000	• Oil bath and spray
Gear Fluid 180	• Recommended for lubrication of open gear trains with speeds up to 10 m/s and power ratings over 2 x 5000 kW	<ul style="list-style-type: none"> • Semi-synthetic oil • High viscosity at all temperatures • Outstanding performance at extreme pressure • Free of solvents, bitumen, chlorine, heavy metals and solid particles 	4600	• Oil bath, spray and lubrication circuit
Gear Fluid 1000 D	• For lubrication of open gear trains in cold temperatures	• Suitable for use in low temperatures with added solvent	2200**	• Spray
Gear Fluid 550 D	• For lubrication of open gear trains in cold temperatures	• Suitable for use in low temperatures with added solvent	1000**	• Spray
Gear Fluid R	<ul style="list-style-type: none"> • Designed for start-up lubrication of large open gear trains • Can be used to correct gear teeth profiles, either on new gears (for perfect engagement of contact surfaces) or on used gears (to prevent seizing) 	<ul style="list-style-type: none"> • Semi-synthetic oil with special additive that generates a necessary physical-chemical reaction when running in metal components • Improves engagement of contact surfaces in areas where temperature and pressure levels are very high 	520	• Oil bath, spray and lubrication circuit
Gear Fluid 300	• Recommended for lubrication of open gear trains with speeds up to 10 m/s and power ratings over 2 x 5000 kW	<ul style="list-style-type: none"> • Synthetic oil with white solid additives • Combines the benefits of solid lubricants and high-viscosity oils • High viscosity at all temperatures • Contains flame retardant to reduce the risk of fire 	9000	• Spray

*Typical kinematic viscosity at 40°C in mm²/s **Viscosity before solvent evaporation



5

LUBRICATION FOR OPEN GEAR TRAINS

High-viscosity compounds supplemented with white solid particles



Gearlog is a line of high-viscosity compounds supplemented by white solid particles. This makes it easier to inspect active flanks. White solid additives can also significantly improve heat resistance.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	VISCOSITY*	METHOD OF APPLICATION
Gearlog P	• Compound lubrication for "priming" open gear trains	• Synthetic oil with white additives	25000	• Brush
Gearlog 1000	• Compound lubrication of open gear trains	• Synthetic oil with white solid additives • Combines the benefits of solid lubricants and high-viscosity oils • High viscosity at all temperatures • Contains flame retardant to reduce the risk of fire	25000	• Oil bath
Gearlog 500	• Compound lubrication of open gear trains	• Synthetic oil with white solid additives • Combines the benefits of solid lubricants and high-viscosity oils • High viscosity at all temperatures • Contains flame retardant to reduce the risk of fire	15000	• Oil bath and spray
Gearlog 200	• Compound lubrication of open gear trains	• Synthetic oil with white solid additives • Combines the benefits of solid lubricants and high-viscosity oils • High viscosity at all temperatures • Contains flame retardant to reduce the risk of fire	5700	• Oil bath, spray and lubrication circuit
Gearlog 1000 D	• Compound lubrication of open gear trains at (very) low temperatures	• Suitable for use in low temperatures with added solvent	2500	• Spray
Gearlog 500 D	• Compound lubrication of open gear trains at (very) low temperatures	• Suitable for use in low temperatures with added solvent	1400	• Spray
Gearlog R	• Compound lubrication for running-in period of open gear trains	• Synthetic oil with white additives	680	• Oil bath, spray and lubrication circuit

*Typical kinematic viscosity at 40°C in mm²/s

Cleaning

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	ISO VG	METHOD OF APPLICATION
Lubriclean EP	• Suitable for cleaning open gear trains, chains, cables, etc., even during operation	• Solvent-based cleaning agent • Once applied, the product slowly evaporates and leaves a lubricating film with extreme pressure properties	3	• Medium-pressure spray



6

Sprays

Optimization of lubrication operations	74
Food industry and related activities	75



6

SPRAYS

Optimization of lubrication operations



Derived from our most reliable industrial lubricants, our **Sprays** offer the same level of quality and effectiveness. We have carefully designed these **Sprays** to meet every type of need in a variety of industries.

Since **Sprays** are always easier to handle, this product line lets you optimize all your lubrication tasks, especially for small and hard-to-reach mechanisms.

The food industry has long been a focus of attention at TotalEnergies Lubrificants. When we created Nevastane almost 50 years ago, we were one of the first lubricants brands to devote our efforts solely to that industry.

To meet the food industry's needs, we have developed a complete line of high-quality food-grade lubricants in the form of **Sprays**.

PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	SERVICE TEMPERATURE
Multis EP 2 Spray	<ul style="list-style-type: none"> Multi-purpose grease Particularly effective for bearings exposed to shock and vibration 	<ul style="list-style-type: none"> Excellent adhesion to metal surfaces Extreme-pressure grease 	-25°C – +120°C
Chain Oil Spray	<ul style="list-style-type: none"> Chains, cables, brake cables, winches, cranes and various small mechanisms that are difficult to access 	<ul style="list-style-type: none"> Enhanced tacky properties High penetration power Anti-corrosion and antioxidant properties 	Room temperature
Copal Spray	<ul style="list-style-type: none"> All types of gears, cables, seals 	<ul style="list-style-type: none"> Excellent grip Solid graphite additives Anti-wear and extreme-pressure properties 	-30°C – +120°C
Specis AL Spray	<ul style="list-style-type: none"> Anti-seizing paste for assembly/disassembly operations in harsh conditions 	<ul style="list-style-type: none"> Anti-rust and anti-corrosion properties High lubricity 	-20°C – +700°C
6-in-1 Spray	<ul style="list-style-type: none"> Multifunctional fluid designed for release and cleaning of seized/rusty mechanisms 	<ul style="list-style-type: none"> Anti-corrosion, anti-oxidant and anti-seizure properties 	Room temperature
Degreaser Spray	<ul style="list-style-type: none"> Multi-purpose cleaner/degreaser 	<ul style="list-style-type: none"> Excellent solvent power Evaporates rapidly Chlorine-free solvent 	Room temperature
Logrease LCX-TF 2	<ul style="list-style-type: none"> Lubrication of telescopic arms and cranes 	<ul style="list-style-type: none"> Excellent grip Resistance to wash-out Specific friction properties to prevent impacts 	-20°C – -160°C



6

SPRAYS

Food industry and related activities



PRODUCT	APPLICATIONS	SPECIFIC BENEFITS	TEMPERATURE	REGISTRATION
NSF Nevastane Lube Spray	• Multi-purpose lubricant for daily lubrication	• Resistance to wash-out • Antioxidant properties	-20°C – +140°C	• NSF H1
NSF Nevastane Grease Spray	• Bearings, hinges, springs, chains, tools	• Excellent adhesion to metal surfaces • Resistance to wash-out • Extreme pressure properties • Anti-corrosion	-20°C – +150°C	• NSF H1
NSF Nevastane XS 220 Spray	• Multi-purpose grease for all applications in harsh conditions	• Resistant to extreme temperatures, moisture and chemicals • Synthetic	-35°C – +160°C	• NSF H1
NSF Nevastane PTFE Grease Spray	• Universal PTFE grease • Long-term lubrication of moving parts subject to significant shear or vibration (gears, pumps, valves, etc.)	• Contains a high level of solid PTFE additives • For all surfaces • No residues or deposits	-10°C – +180°C	• NSF H1
NSF Nevastane Chain Oil Spray	• Chains, conveyors, small mechanisms	• Tacky, adhesive oil • High penetration power • Extreme-pressure and anti-wear properties • Resistance to wash-out	-30°C – +150°C	• NSF H1
NSF Nevastane Silicone Spray	• Chains, conveyors, rails	• Creates a protective silicone film • Lubricant • Release agent • Anti-static • Hydrophobic	-60°C – +230°C	• NSF H1
NSF Nevastane Penetrating Oil Spray	• Multi-purpose fluid for releasing jammed mechanisms under harsh conditions	• Anti-corrosion, anti-oxidant and anti-seizure properties • Lubricant • Hydrophobic	Room temperature	• NSF H1
NSF Nevastane Degreaser Spray	• Multi-purpose cleaning/degreasing agent	• Excellent solvent power • Evaporates rapidly • Free of chlorinated, brominated or aromatic compounds	Room temperature	• NSF K1



7

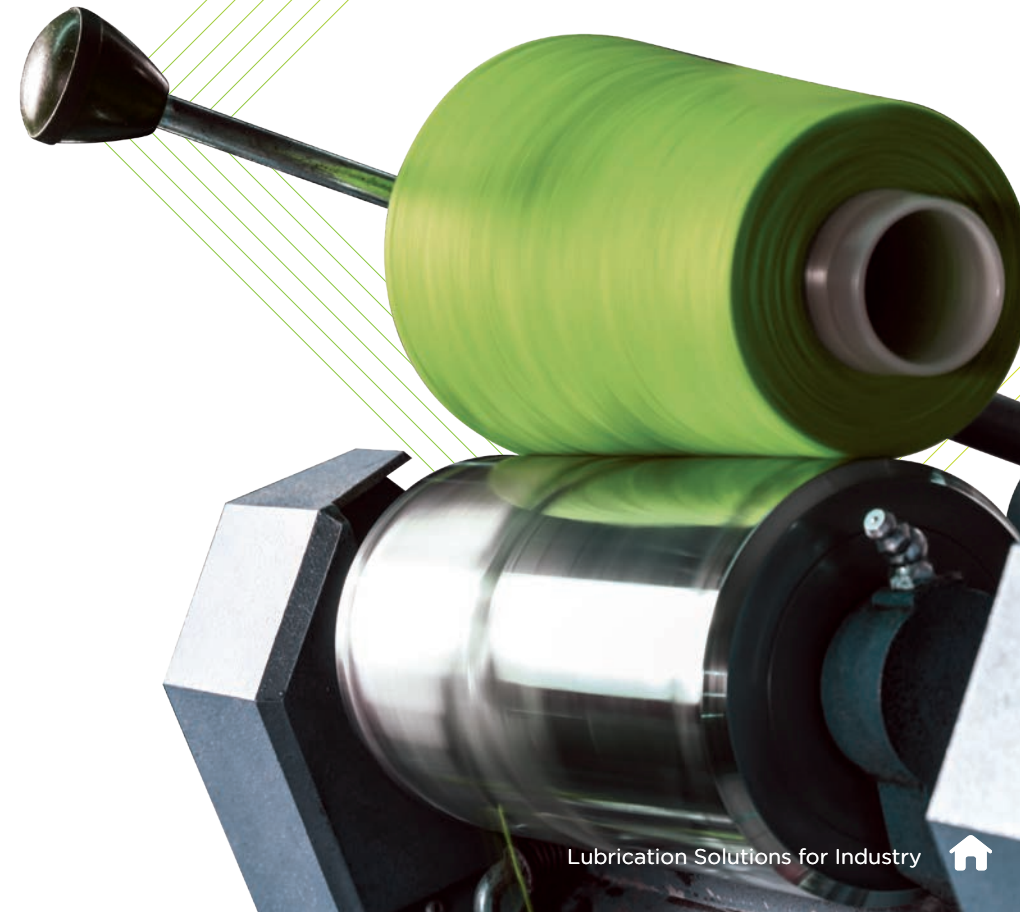
Textile

TotalEnergies offers a full range of lubricants and textile auxiliaries that help improve the quality of your production and make your machinery run efficiently.

TotalEnergies products have been designed in cooperation with textile manufacturers and equipment technicians to meet the demands of various industries, including automotive applications, floor coverings, clothing, furniture, etc.

All the products in our Textile line are manufactured in accordance with REACH regulations and are free of SVHC (Substances of Very High Concern) such as ethoxylated alkylphenols.

For more information, see our brochure on the textile product line.



8

Services

- Fluid management**.....78
- LubAnac**.....79
- Automatic lubrication systems**.....79
- Lubrication plans/audits**.....79
- Technical training in lubrication**.....80
- Environment and safety**.....80
- Customer Support**.....80



Fluid management

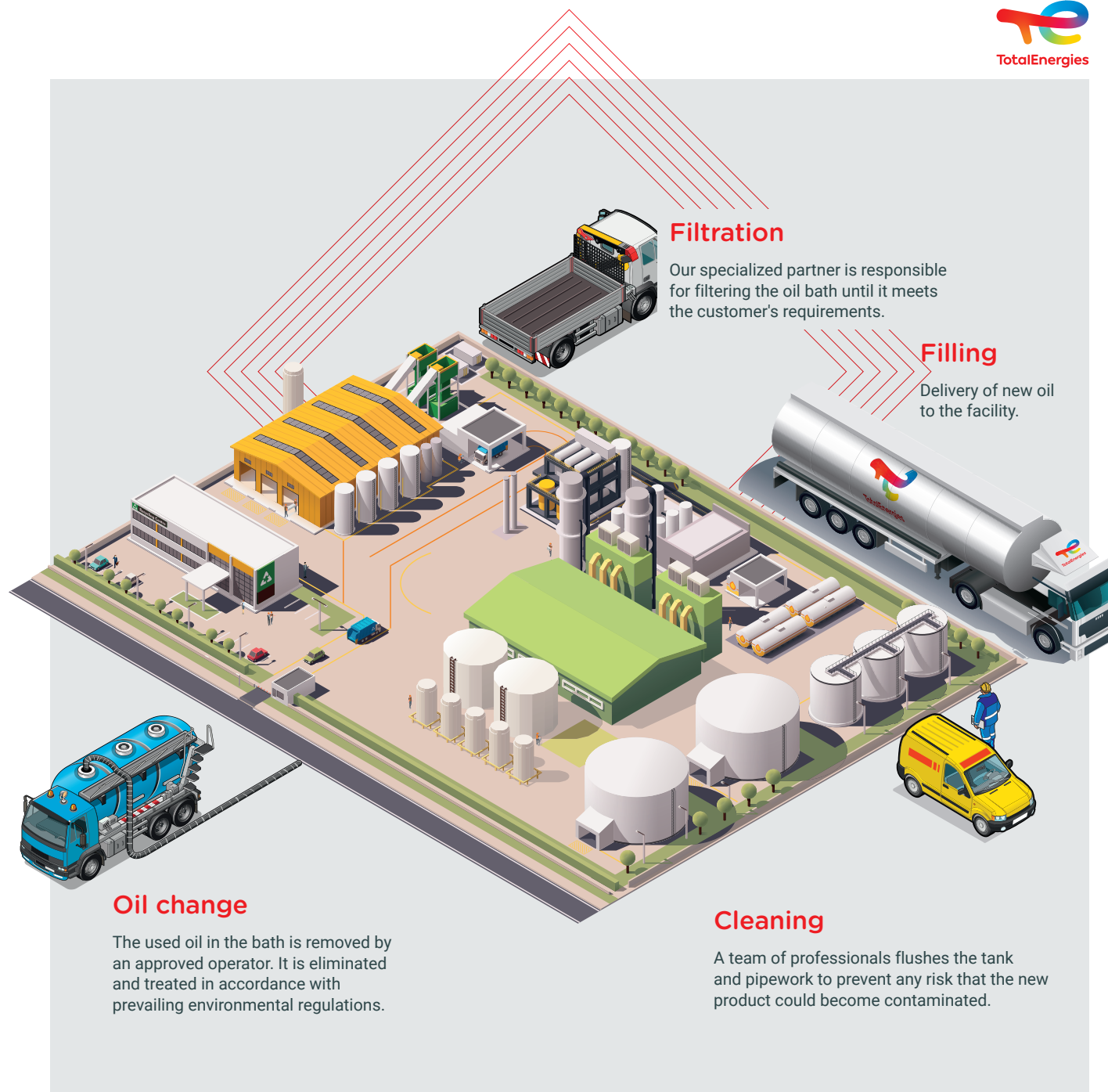
TotalEnergies Fluid Management offers full or partial oil change services for your equipment.

Key benefits

- All follow-up and communication is done through a designated point of contact.
- Local subcontractors recommended by TotalEnergies.
- We understand each user's needs and requirements (safety, procedures, responsibilities, timing).

Additional benefits

- Managed by a team of TotalEnergies experts.
- End-to-end management of production and lubricant know-how.
- A high-performance, ISO-certified oil diagnostics and analysis system: LubAnac.
- Collaboration with trusted partners.
- Full project management with progress reports right up until invoicing.
- Customers advised on best practices and maintenance.



LubAnac

- Oil analysis using a variety of methods.
- Local technical support for focused advice.



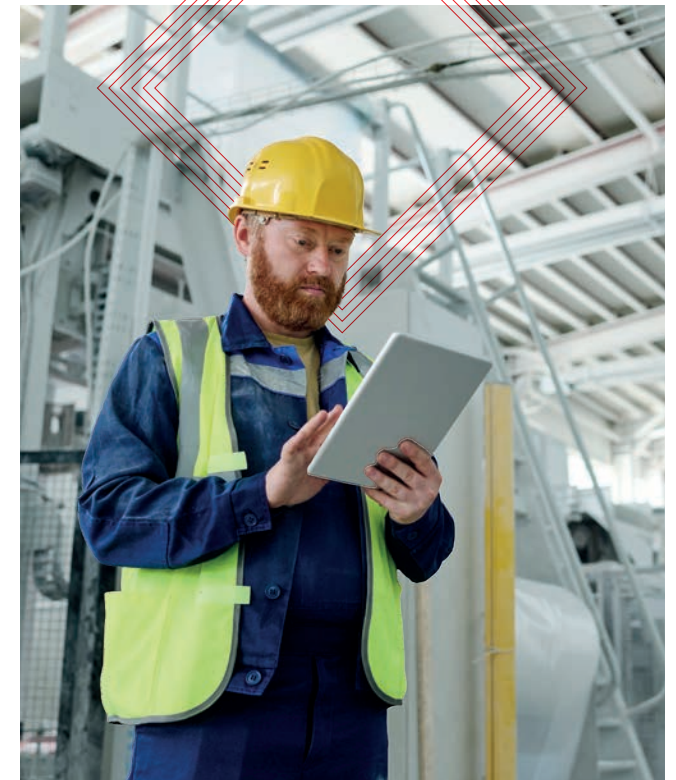
Automatic lubrication systems

- Tailored to the customer's needs.
- The lubrication system's automation unit can be connected to the existing control system (operation, alerts, etc.).



Lubrication plans/audits

- Inventory of current lubricants and their application.
- Optimized lubrication intervals and use of lubricants.
- Streamlined use of lubricants reduces inventory requirements.



Technical training in lubrication

- Introductory and advanced programs on the proper use of an industrial lubricant.
- Technical assistance on call to assist and advise customers at all times.



Environment and safety

- As part of our environmental policy, TotalEnergies offers a service for collecting empty barrels and disposing of used oils.
- Up-to-date safety data sheets available at all times.



Customer Support

- TotalEnergies offers a personalized, people-oriented customer sales service combined with responsive logistics.
- Support for our customers' local and international growth.
- Quick delivery guaranteed (3 to 5 working days) thanks to our integrated organization (in-house production plants, ultra-modern logistics hub).



Index



A			
Altis.....	41		
Axa.....	47		
Azolla.....	6, 9		
B			
Barrier.....	25		
Bioadhesive.....	46		
Biohydran.....	9		
Biomerkan.....	46		
Biomultis.....	36		
Bio OG.....	46		
Biopreslia.....	18		
Blue Concentrate.....	9		
C			
Caloris.....	47		
Carter.....	10, 11, 12, 13		
Ceran.....	42, 43, 44		
Chain Oil.....	74		
Cirkan.....	22		
Cleaner.....	9, 31		
Coolelf.....	32		
Copal.....	39, 74		
Cortis.....	22		
Cyl.....	25		
D			
Dacnis.....	14, 16		
Degreaser.....	74		
Diel.....	59		
Disola.....	21		
Drasta.....	58		
Drosera.....	62		
E			
Emetan.....	27		
Equivis.....	7, 9		
Estar.....	24		
F			
Finadet.....	31		
Finasol.....	31		
Finaturol.....	28		
Finavestan.....	27		
Folia.....	50		
G			
Gasol.....	24		
Gear Fluid.....	71		
Gearlog.....	72		
Glacelf.....	32		
Grafolog.....	69, 70		
H			
Hydransafe.....	8		
Hydroflo.....	7		
I			
Isovoltine.....	29		
K			
Kassilla.....	10		
L			
Lactuca.....	52		
Lical.....	35		
Logrease.....	74		
Lubriclean.....	72		
Lunaria.....	15		
Lyran.....	27		
M			
Marson.....	47		
Martol.....	56, 57		
Misola.....	23		
Multis.....	34, 35, 74		
Multis Complex.....	37, 38		
N			
Nateria.....	20, 21		
Nevastane.....	6, 7, 10, 12, 14, 24, 26, 32, 40, 45, 46, 64, 65, 66, 67, 75		
O			
Orites.....	16, 19		
Osyris.....	61		
P			
Planetelf.....	15		
Pneuma.....	30		
Preslia.....	17, 18		
PV.....	16		
S			
Serade.....	60		
Seriola.....	26		
Specis.....	47, 74		
Spirit.....	51		
Statermic.....	47		
T			
Torilis.....	28		
V			
Valona.....	53, 54, 55		
Vulsol.....	52		
W			
WT.....	32		
6-in-1.....	74		

Appendix



Technical Information

■ ISO VG

The international ISO VG classification is used to classify oils based on their viscosity.

By convention, the ISO VG grade corresponds to the mid-point of a range of kinematic viscosity in mm²/s at 40°C.

ISO CLASSIFICATION OF LUBRICANTS BASED ON THEIR VISCOSITY (ISO 3448 STANDARD)

ISO VISCOSITY CLASS	MEDIAN KINEMATIC VISCOSITY AT 40°C IN MM ² /S	KINEMATIC VISCOSITY RANGE AT 40°C IN MM ² /S	
		MIN.	MAX.
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	11
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
ISO VG 2200	2200	1980	2420
ISO VG 3200	3200	2880	3520

■ KINEMATIC VISCOSITY MEASUREMENT

In the international measurement system, kinematic viscosity is expressed in mm² per second.

■ NLGI GRADE

The National Lubricating Grease Institute (NLGI) grade indicates the consistency of the greases. The classification is based on the “worked penetration” at 25°C.

NLGI GRADE	PENETRATION AFTER USE AT 25°C (1/10 TH MM)
000	445 - 475
00	400 - 430
0	355 - 385
1	310 - 340
2	265 - 295
3	220 - 250

■ ABBREVIATIONS

HACCP	Hazard Analysis and Critical Control Point A method of risk analysis and control of critical points in the food industry
HSE	Health, Safety, Environment
FZG	Forschung für ZahnradGetriebe. A method for evaluating the extreme pressure properties of lubricants, ISO 14635 standard
PAG	Poly Alkylene Glycols
PAO	Polyalphaolefins
POE	Polyol Esters
TOST	Turbine Oil Stability Test. Oxidation stability test for turbine oils, ASTM D943 standard

Storage, safety, hygiene, environment

■ STORAGE RECOMMENDATIONS

1. Store products in a frost-free location. Soluble oils should be stored at temperatures between 5°C and 40°C.
2. Store drums and kegs lying flat with the two bungs horizontal (positioned at 9am and 3pm), to prevent the seals and air inlet from drying out.
3. Store packages on shims so they are above the ground. Invert them once a year to lubricate the non-immersed walls.
4. If instructions 1 and 2 cannot be implemented, store the drums upside down, with bungs facing down.

NEVER STORE A PACKAGE STANDING UPRIGHT OUTDOORS WITH THE BUNGS ON TOP.

■ RECOMMENDATIONS FOR USE

5. Apply FIFO: first in, first out.
6. Record the date it was opened on the package.
7. Wipe the area around each opening.
8. Close the package again each time contents are removed.

■ HEALTH AND SAFETY

Almost all lubricants are not flammable under ambient conditions.

However, they must not be stored in proximity to:

- Oxidizing, corrosive or flammable substances: chlorine, oxygen, acids, bases, solvents, etc.
- Hot surfaces or ignition points.
- Electrical contacts.

Safety data sheets are available at ms-sds.totalenergies.com

■ ENVIRONMENT

Storage areas must allow for easy recovery (via pumping, absorption) in the event of accidental leaks, with no discharge into the natural environment.

A retention bin or tank is recommended or may even be mandatory depending on current legislation.



A major player

With our production, supply chain and commercial presence in more than 160 countries, we deliver a full range of lubricants.

References & OEMs

TotalEnergies Lubrificants cooperates with equipment manufacturers to create high-technology products for optimal performance and production of your machinery.

Quality and environment

TotalEnergies Lubrificants ISO 9001 and 14001 certifications are the guarantee of a long term commitment to quality and environment. From the initial design stage, our R&D teams seek to develop products that minimize toxicity risks and environmental impact.



Support and partnership

Thanks to local technical presence, we provide a high level of service to optimize your Total Cost of Ownership.

Innovation & Research

TotalEnergies Lubrificants invests in biotechnologies to find the most suitable components to reach energy efficiency through formulations designed in our Research Centers.



TotalEnergies



lubricants.totalenergies.com
services.totalenergies.be



TotalEnergies Industry Solutions



lubricants.belgium@totalenergies.com

Safety Data Sheets are available at ms-sds.totalenergies.com