



Petrochemical industry

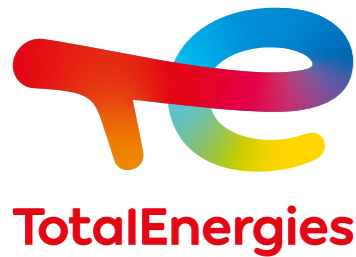
Integrated solutions
to enhance your
productivity



TotalEnergies

Summary

- The benefits offered by TotalEnergies Lubrificants LubAnac & LubInsight
- Your challenges
- Our solutions
- Turbocompressors, air compressors & gas compressors fluids
- Gear box, hydraulic circuit & barrier fluids
- Heat transfer & food grade fluids
- Greases
- Five good reasons for choosing TotalEnergies Lubrificants



Chemical plants rely on a wide variety of equipment from process fluid systems, to rotating equipment, to high-pressure compressors, whose **reliability is crucial** to efficient and cost-effective production.

Thanks to **50 years of experience** in the petrochemical industry, TotalEnergies Lubrificants is your partner of choice for increasing the **safety and efficiency** of your plant operation.

The benefits offered by TotalEnergies Lubrificants

LubAnac

LubAnac provides you a full range of lube oil analysis, to allow you to anticipate and diagnose anomalies in the equipment.

Thanks to LubAnac, you:

- Reduce** your operating **costs**.
- Anticipate and plan** maintenance operations to perform them at the **best time**.
- Optimize** drain intervals and **extend the lifetime** of your equipment.
- Improve the reliability and performance** of your equipment.

LubInsight maintenance planner

Optimized maintenance software for your lubricants (CMMS)*

LubInsight Maintenance Planner allows you to boost your productivity through efficient maintenance planning. Built on the expertise of our engineers it offers you to:

- Increase efficiency** and savings of your maintenance management.
- Monitor lubricant parameters and analyses** with a single tool.
- Assert your quality and safety management** through management of lubricant documentation and critical points.

LubInsight Maintenance Planner will help you to deploy and monitor your HACCP** policy on a day-to-day basis.



OUR EXPERT SUPPORTS

Site audit:

- Identification of Critical Point of Lubrication (HACCP approach)
- Product recommendation, optimization, handling and storage rules
- Stock rationalization customized on site trainings in order to fit with maintenance team expectations

THE 7 PRINCIPLES OF HACCP

- Risk analysis
- Critical Control Point (CCP)
- Definition of the critical thresholds
- Establishment of a surveillance system
- Corrective measures
- Verification
- Documentation (HACCP plan)

THE SOLUTIONS OFFERED

- Maintenance plan readings on site
- Data entry in the software
- Identification of the critical points
- Allocation of the NSF H1 lubricants
- Definition of the control analyses
- Management of preventive and condition-based maintenance
- Scorecards for maintenance and critical points
- Document management
- Maintenance history

* Computerized maintenance management software
** Hazard Analysis Critical Control Point

Your challenges

- **To protect** process equipment operating under the harshest conditions over long service intervals
- **To lengthen** the lifespan of lubricant and equipment
- **To reduce** maintenance cost and production downtime
- **To comply** with the most stringent environmental and safety regulations



GEAR BOX

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS / APPROVALS
Carter EP	Mineral	68 to 1000	<ul style="list-style-type: none"> Industrial gears, bearings under high loads and high temperatures 	ISO 12925-1 CKD, DIN 51517-3 CLP, AGMA 9005-E02 EP, U. S. Steel 224, Flender
Carter SH	PAO	68 to 3200	<ul style="list-style-type: none"> Gears subjected to very high loads and high temperatures in difficult environments 	Anti-scuff/Antiwear (EP) Oils, ISO 12925-1 CKD, DIN 51517-3 CLP Flender, FAG, SKF
Carter SG	PAG	100 to 1000	<ul style="list-style-type: none"> Very high performance synthetic gear lubricant for standard, crown, planetary, and worm gearboxes Very high EP performances, high sliding performances Non-miscible with mineral oils and certain synthetic lubricants 	DIN 51517 Part 3 - CLP ISO 12925-1 category CKE DANIELI Meets the requirements of the main gearbox manufacturers

HYDRAULIC CIRCUIT

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS / APPROVALS
Azolla ZS	Mineral	10 to 150	<ul style="list-style-type: none"> Hydraulic systems operating in high temperature and pressure conditions Bearings and miscellaneous devices 	ISO 11158 HM, DIN 51524-2 HLP, Eaton I-286S, M-2950S, Denison HF0, HF1, HF2
Azolla AF	Mineral	22 to 100	<ul style="list-style-type: none"> Hydraulic systems especially sensitive to the formation of deposits and/or operating in high temperature and pressure conditions Bearings and miscellaneous equipment 	ISO 11158 HM, DIN 51524-2 HLP, Eaton I-286S, M-2950S, Denison HF0, HF1, HF2
Equivis ZS	Mineral	15 to 100	<ul style="list-style-type: none"> Hydraulic systems operating outdoors 	ISO 11158 HV, DIN 51524-3 HVLP Vickers, Cincinnati-Milacron, P68, P69, P70
Equivis XLT	Mineral	15 to 32	<ul style="list-style-type: none"> Hydraulic systems operating at extremely low temperatures as far down as -40 °C 	ISO 6743/4 HV, ISO 11158 HV

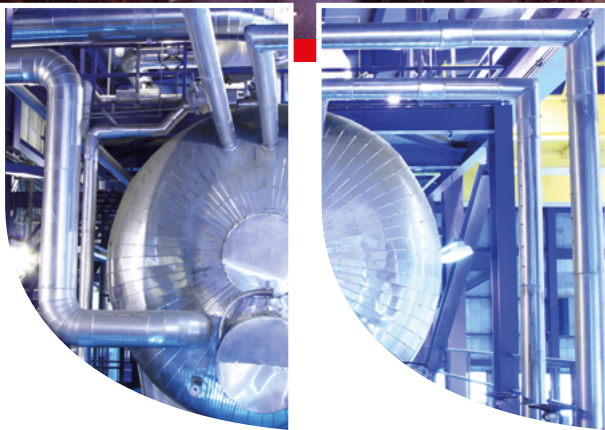
BARRIER FLUIDS

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS
Barrier Fluid	Mineral	5 10	<ul style="list-style-type: none"> 100 % food grade oil Provides protection and good service life to the lubricated equipment Barrier Fluid 5 is 100 % synthetic 	NSF H1



Our solutions

- A wide range of high-performance lubricants **meeting OEM requirements** (CompAir, Burckhardt Compression, Baker Hughes, General Electric, etc....)
- **NSF** - registered products designed for food safety applications
- **Local experienced and dedicated team** at your service to fulfill your needs (technical assistance, training, logistics support)
- **Worldwide presence** in more than 160 countries

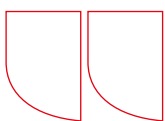


HEAT TRANSFER FLUIDS

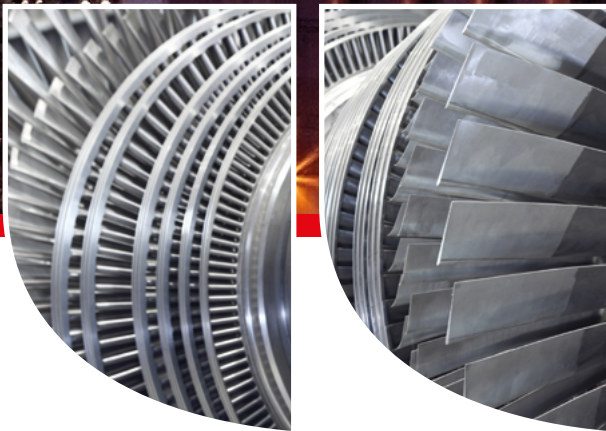
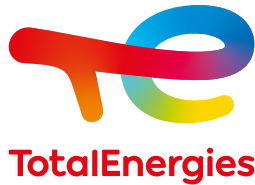
PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES
Seriola	Mineral	32 100	<ul style="list-style-type: none"> • Closed circuits without air contact • Process temperature < +310 °C (-330 °C in the film)
Seriola AB	Premium alkylbenzene	20	<ul style="list-style-type: none"> • Closed circuits without air contact • Better detergency and extended lifetime compared to mineral fluids
Seriola Cleaner	Cleaning additive	25	<ul style="list-style-type: none"> • Hot cleaning of heat transfer circuits • Miscible with mineral-based heat transfer fluids • Process temperature ~ +270 °C • Very high thermal stability

FOOD GRADE OFFER

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	NSF
Nevastane AW	WO	22 to 68	<ul style="list-style-type: none"> • Hydraulic systems operating under severe conditions • Very good equipment protection power • Increased equipment service life • Miscibility with mineral fluids 	NSF
Nevastane SH	PAO	32 to 100	<ul style="list-style-type: none"> • Air compressors • Adapted to the severe environment • Very high equipment protection level, even under severe conditions 	NSF
Nevastane XSH	PAO	150 to 460	<ul style="list-style-type: none"> • Severe temperature conditions and high loads • Gears, slideways, plain bearings and (roller) bearings 	NSF
Nevastane HTF	WO	32	<ul style="list-style-type: none"> • Closed circuits without air contact • Numerous manufacturing processes in Agrifood Industry: water baths, autoclaves, reactors, ovens, presses and moulds 	NSF



Understanding your process and supporting your operations for decades.




TURBOCOMPRESSORS

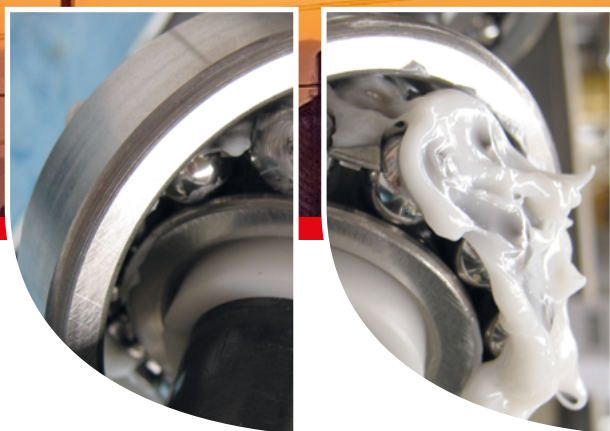
PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS / APPROVALS
Preslia	Mineral	32 to 100	<ul style="list-style-type: none"> • Steam and gas turbines • Centrifugal compressors • Extended life time thanks to a very high resistance to oxidation and reinforced anti-wear and extreme pressure properties • Reduce maintenance costs with extended drain intervals 	Alstom, Siemens TLV, Ansaldo, Skoda Doosan, General Electric GEK, Siemens MAT, Solar
Preslia GT	Hydrocracked mineral	32 46		
Preslia EVO	Hydrocracked mineral	32 46	<ul style="list-style-type: none"> • Low varnish oriented modern steam, gas, and combined cycle turbines as well as turbo compressors subjected to: <ul style="list-style-type: none"> - High loads and thermal stress - Varnish and sludge tendency 	Man, Siemens, TLV
Orites TN 32	Mineral	32	<ul style="list-style-type: none"> • Ammonia synthesis turbo-compressor • Excellent resistance to oxidation and air release properties • Chemically inert to ammonia thus avoiding deposit • Compatibility with elastomers 	Dresser-Rand, Thermodyn, Creusot-Loire, Rateau

AIR COMPRESSORS

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS / APPROVALS
Dacnis	Mineral oil	32 to 68	<ul style="list-style-type: none"> • Rotary air compressor • Drain interval 2,000 hours 	ISO 6743-3 DAH , ISO 6521-2, APV, Gram, Bock, J & E Hall, Grasso, Howden, Sabroe, York
Dacnis LD	Hydrocracked mineral	32 to 68	<ul style="list-style-type: none"> • Rotary air compressor • Long drain interval 4,000 hours 	ISO 6743-3 DAJ, ISO 6521-2, DIN 51506 VDL, APV, Gram, Bock, J & E Hall, Grasso, Howden, Sabroe, York
Dacnis SH	Synthetic PAO	32 to 100	<ul style="list-style-type: none"> • Rotary and reciprocating air compressor • Very long drain interval up to 8,000 hours 	ISO 6743-3 DAJ, DIN 51506 VDL, CompAir, Dresser-Rand, Sauer & Sohn and Sulzer Burckhardt

GAS COMPRESSORS

PRODUCT	OIL TYPE	ISO VG	APPLICATIONS & ADVANTAGES	CERTIFICATIONS / APPROVALS
Dacnis LPG	PAG	150 220	<ul style="list-style-type: none"> • Hydrocarbon gas compressors • Resistant to dilution by hydrocarbon gases • Excellent chemical stability 	Sulzer-Burckhardt, Howden et Aerzen
Dacnis SH100	PAO	100	<ul style="list-style-type: none"> • Screw compressors for hydrocarbons until 15 bars • Very long drain interval up to 8,000 hours 	ISO 6743-3 DGC, CompAir, Dresser-Rand, Sauer & Sohn and Sulzer Burckhardt
Lunaria NH	Hydrocracked mineral	46 68	<ul style="list-style-type: none"> • Refrigerating compressors using NH₃/ammonia • Evaporating temperature > -30 °C 	ISO 6743-3 DRA, APV, Gram, Bock, J & E Hall, Grasso, Howden, Sabroe, York
Lunaria SH	PAO	46 68	<ul style="list-style-type: none"> • Refrigerating compressors using NH₃/ammonia. • Evaporating temperature > -50 °C 	ISO 6743-3 DRA, APV, Gram, Bock, J & E Hall, Grasso, Howden, Sabroe, York 
Cirkan RO	Mineral	100 150 220	<ul style="list-style-type: none"> • Crankcase lubrication of reciprocating compressors 	ISO 6743-4 HL • ISO 6743-6 CKB • DIN 51517-2 CL • DIN 51524-1HL • AGMA 9005-E2 RO



MULTIPURPOSE GREASES

PRODUCT	THICKENER	VISCOSITE HDB	APPLICATIONS & ADVANTAGES
Multis EP 2	Lithium / Calcium	150	<ul style="list-style-type: none"> • Extreme Pressure, multipurpose grease for a wide range of industrial and automotive applications • Enabled to rationalize stocks and simplify maintenance operations
Multis complex EP 2	Lithium complex	165	<ul style="list-style-type: none"> • Extreme Pressure, multipurpose grease suitable for wheel bearing, ball bearings, roller bearings, plain bearings, seal • Excellent mechanical and thermal stabilities • Minimized downtime and maintenance cost
Multis complex SHD	Lithium complex	32 to 460	<ul style="list-style-type: none"> • High performance, extreme pressure synthetic semi fluid grease for gearbox applications • Reduced gear wear due to excellent EP properties • Long service life even at high operating temperatures • Reduced power consumption due to low running

HIGH-SPEED GREASES

PRODUCT	THICKENER	VISCOSITE HDB	APPLICATIONS & ADVANTAGES
Altis SH 2	Polyurea	80	<ul style="list-style-type: none"> • Very high-performance synthetic grease suited for high speed bearings such as electric motors, over a wide range of temperatures • Formulated for First Fill applications and long service life • Reduced vibration • Reduced energy consumption • Extended lubrication intervals • Extreme temperature operations even at high speed
Altis EM 2	Polyurea	110	<ul style="list-style-type: none"> • High performance grease suited for high speed bearings and high temperature applications such as electric motors • Reduced vibration • Reduced energy consumption • Extended lubrication intervals

SPECIALTY GREASES

PRODUCT	THICKENER	VISCOSITE HDB	APPLICATIONS & ADVANTAGES
Copal OGL	Aluminum complex	> 1000 cSt	<ul style="list-style-type: none"> • Highly adhesive grease for heavy loaded application operating at high temperature • Contains 8 % Graphite and 1 % MoS2 • Very good water resistance • Exists in NLGI grade 0 and 2
Axa GA 3	Calcium	69 cSt	<ul style="list-style-type: none"> • Packer grease for autoclaves, reactors under pressure or in a vacuum, in the chemicals and other industries
Fuolog K500	PTFE	500 cSt	<ul style="list-style-type: none"> • High-temperature grease for a wide range of speeds and for applications under the influence of chemicals and vapours, available in NLGI classes 0, 1, 2, 3, NSF H1-registered for food and pharmaceutical applications





A major player

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

Support and partnership

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

References & OEMs

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



Innovation & Research

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

Quality and environment

TotalEnergies Lubrifiants 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.



TotalEnergies



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



TotalEnergies Industry Solutions