

ADDINOL[®]

THE ART OF OIL • SINCE 1936

High-performance lubricants for

MINING and CONSTRUCTION



www.addinol.de





Solutions for all lubrication-related challenges

ADDINOL is one of the few companies in the German mineral oil industry acting independently of any large business group and has distributor partners on all continents and in more than 120 countries. Our high-performance lubricants are design

elements reflecting the highest level of modern technology. In symbiosis with engines, drives, chains, bearings and hydraulic systems they reveal their full performance.



Development and production at the company site in Leuna, one of the most modern lubricant factories in Europe



More than 650 different products, filled, packed, stored and dispatched in line with highest standards



Decades of experience and close cooperation with internationally leading OEM and institutes. State-of-the-art instrumental analytics and selected machine test benches in our own laboratory



Extended operating lives, increased energy efficiency, reliable protection of components, extended lifetime and resource-conserving – added value in the long run



Competent partner network in more than 120 countries and on all continents



Our service for you: application-technical support, comprehensive analyses service, trainings at the ADDINOL Academy



Quality and environmental management certified according to DIN EN ISO 9001:2015 and 14001:2015 by TÜV Süd Management Service GmbH



High-Performance Lubricants

In application

1 TRANSMISSION

- GH 75 W 90
- GH 80 W 90
- GH 85 W 90
- GH 75 W 140
- GH 80 W 140
- Eco Gear GLS 75 W 90
- Eco Gear GLS 75 W 110
- Fluid TO-4

2 ENGINE CRANKCASE

- Professional 1040/1540 E8 E11
- Diesel Longlife MD 1548
- Super Longlife MD 1047
- Super Truck MD 1049

3 COOLANT SYSTEM

- Antifreeze CHB
(complete change necessary)

4 BEARINGS & GREASE

- Multi-Purpose Grease L 2 MO
- Hightemp EK 2
- Longlife Grease HP 2
- Wear Protect SDE 2
- Adhesive Lubricant OG 0
- Combiplex OG 0-2500
- Hightemp XFT 2 Plus
- Eco Grease PD 2-400 Plus

5 HYDRAULIC SYSTEM

- HV Eco Fluid 32, 46
- HLP 10 ... HLP 100
- HVLP 15 ... HVLP 68
- HLPD 10 ... HLPD 68

6 HOIST BRAKE SYSTEM

- Fluid TO-4 SAE 10W
- Turbo Diesel MD Series

7 DIFFERENTIALS & GEAR DRIVES

- Eco Gear GLS 68 ... 680
- Eco Gear 68 S-T
- Eco Gear 100 S ... 680 S
- Eco Gear 100 M ... 680 M
- Gear Oil CKT 68 ... 1000
- Poly Gear PG 100 ... PG 680
- Gear oil 100 ... 680 F
- Gear Oil CLP 68 ... CLP 68



ADDINOL Professional mining lubricants



1 SWING / GEAR DRIVES

- GH 75 W 90 SL
- Fluid TO-4
- Eco Gear GLS 75 W 90
- Eco Gear GLS 75 W 110

2 ENGINE CRANKCASE

- Professional 1040/1540 E8 E11
- Diesel Longlife MD 1548
- Super Longlife MD 1047
- Super Truck MD 1049

3 BEARINGS & GREASE

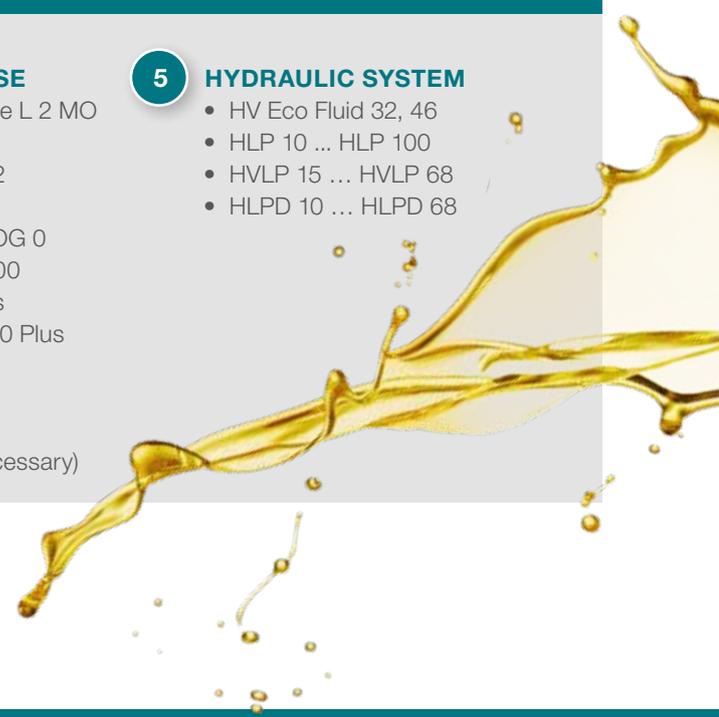
- Multi-Purpose Grease L 2 MO
- Hightemp EK 2
- Longlife Grease HP 2
- Wear Protect SDE 2
- Adhesive Lubricant OG 0
- Combiplex OG 0-2500
- Hightemp XFT 2 Plus
- Eco Grease PD 2-400 Plus

4 COOLANT SYSTEM

- Antifreeze CHB
(complete change necessary)

5 HYDRAULIC SYSTEM

- HV Eco Fluid 32, 46
- HLP 10 ... HLP 100
- HVLP 15 ... HVLP 68
- HLPD 10 ... HLPD 68



ADDINOL Lubricants

Designed for the biggest challenges

Applications in mining industry involve dirt and dust, shocks and vibrations, strong temperature variations and highest loads. Last not least, efficiency and trouble-free operation is taken for granted as time is money!

ADDINOL as a competent lubrication partner knows the particular conditions and challenges in mining. We offer tailored solutions and accompany the application of our comprehensive product range professionally:

- ✓ Lubricants for gears
- ✓ Fluids for hydraulic plants
- ✓ Engine and transmission oils
- ✓ Lubricating greases
- ✓ Lubricants for operation and maintenance
- ✓ Biodegradable solutions

Your benefits with ADDINOL at a glance



Tailor-made lubricants approved by leading OEM



Expert advice on lubricant application



Stable operation of units and equipment



Comprehensive oil analyses



Cost saving due to increased efficiency

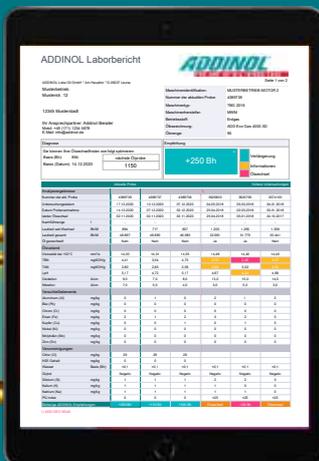


Technical support on-site

ADDINOL Power Pack

Operation + maintenance + analysis

...all at one stop



ADDINOL Lab report
Reliable analysis

ADDINOL Service Products
Easy maintenance



ADDINOL Lubricants
For highest requirements

ADDINOL Gear Oils

for all requirements

ADDINOL offers a **whole range of gear oils** tailored to various applications and requirements in both mobile and stationary equipment:

- ✓ Suited for closed gears with splash or circular lubrication
- ✓ Standard mineral oil based gear oils for normal requirements
- ✓ Eco Gear range for demanding applications where standard lubricants fail
- ✓ Biodegradable gear oils for ecologically sensitive areas



Your benefits with ADDINOL gear oils



Reliable lubrication even under extreme operating conditions



Highest scuffing load capacity



Maximum wear protection



Reduction of gear power loss



Best possible friction behaviour



Low foaming tendency

We recommend our ADDINOL Analyses Service for the regular monitoring of the oil condition to support the reliable and economical operation of units. Possible malfunctions or disruptions can be detected early on to prevent breakdowns and standstills.



Benefits

Clear

Traffic light system for recommended oil change intervals

Clearly structured

Individual oil application time in focus

Concise

Analytical values at a glance and highlighted in case of irregularities

Individual

Comments tailored to the respective unit

ADDINOL lab report		ADDINOL THE ADDINOL OILS GROUP			
ADDINOL Lubo Oil GmbH • Am Hauptstr. • D-86237 Leuna		Engine identification: Gearbox 1	page 1 of 2		
Am Hauptstr. 1 Leuna		Number of current sample: ADD0270125			
Responsible person: Mobile: - E-Mail: -		Machine type: Eco AM 1			
		Machine manufacturer: Example Company			
		Product name: Eco Gear 320 S			
		Oil volume: 100 liters			
Diagnosis	Recommendation				
Please send the next sample after 12 M.	+12 M				
	■ Extension ■ Information ■ Oil change				
		Current sample		previous Analysis	
Analysis results					
Lab.-no. number	ADD070125	ADD130824	ADD090624	ADD020424	
Date of analysis	27.01.2025	13.08.2024	26.06.2024	22.04.2024	
Sampling date	25.01.2025	02.08.2024	24.06.2024	18.04.2024	
Last oil change	02.08.2024	02.08.2024	16.04.2018	16.04.2018	
Oil. h. since oil change	5	2	74	72	
Operating hours complete	97.073	92.919	91.994	90.388	
Oil changed	No	Yes	No	No	
Oil condition					
Viscosity at 40°C	mm ² /s	310,55	310,01	319,72	321,45
Viscosity at 100°C	mm ² /s	30,84	31,21	30,45	30,43
Viscosity index		137	139	131	131
Neutralization number	mg/KOH/g	1,84	2,31	1,57	1,69
Oxidation	Atom	0,0	0,0	3,0	2,0
Wear elements					
Aluminium (Al)	mg/kg	0	0	0	0
Lead (Pb)	mg/kg	0	0	0	2
Chromium (Cr)	mg/kg	0	0	0	1
Iron (Fe)	mg/kg	6	145	45	42
Copper (Cu)	mg/kg	0	1	1	1
Nickel (Ni)	mg/kg	0	0	0	0
Manganese (Mn)	mg/kg	0	0	1	1
Tin (Sn)	mg/kg	0	0	0	0
Impurities					
Water (H ₂ O)	ppm	73	301	125	114
Potassium (K)	mg/kg	0	0	0	0
Sodium (Na)	mg/kg	12	6	2	2
Silicon (Si)	mg/kg	1	6	2	2
Lithium (Li)	mg/kg	0	0	0	0
Titanium (Ti)	mg/kg	0	0	3	3
Tungsten	mg/kg	0	0	0	0
PQ index		25	25	25	25
Following ADDINOL maintenance		+12 M	Oil change	Information	+12 M

ADDINOL®	DIN	ISO	Application temp. (min./max.) (°C)	Approvals, specifications and recommendations	Product description
Eco Gear GLS 68 ... 680	51517/3 (CLP)	ISO 12925-1 (E) (CKE) ISO 6743-6 (E) (CKE) DIN ISO 3448	-30 / +120 (short-term up to +150)	ANSI/AGMA 9005-F16, SEB 181 226, SAE J 306 Viscosity classes, Winch gears of ZF Industrial drives, Planeta in Leitner- Prinoth, Kässbohrer, Industrial lifting and conveyor systems	Synthetic base oils with EP/AW additivation for maximum load bearing capacity (in line with API GL-5) and highest corrosion and ageing protection in industrial applications with extreme loads or frequent severe loads, suited for closed gears of different construction types, spur gears, planetary and axle gears, long-term efficiency
Eco Gear 68 S-T 100 S ... 680 S	51517/3 (CLP)	ISO 12925-1 (E) (CKE, CKSMP) ISO 6743-6 (E) (CKE, CKSMP) DIN ISO 3448	68 S-T: -40 / +120 100...680 S: -30 / +120 (short-term +150)	ANSI/AGMA 9005-F16 AS Drives, Brückner Maschinenbau, David Brown, Koellmann Gear, Renk, Flender, Sumitomo- Hansen, ZF Industrie, Zeifelder Pumpen, further 68 S-T: Siemens NT7300 A-c ISO-VG 68, Pekrun Standard 8053	Silicone-free, synthetic high-performance gear oils with Surftec®-technology, for closed gearboxes of different construction types, also suitable for roller and sliding bearings, ideal for high mechanical and thermal loads, prevention of micro-pitting and pittings, noticeable prolongation of the operating life of machines and lubricant, saving of energy, re-smoothing of damaged friction surfaces, suitable for wide temperature range, Eco Gear 68 S-T possesses outstanding low temperature properties
Eco Gear 100 M ... 680 M	51517/3 (CLP)	ISO 12925-1(E) (CKC, CKD, CKE, CKSMP) ISO 6743-6 (E) (CKC, CKD, CKE, CKSMP) DIN ISO 3448	-10 / +1	ANSI/AGMA 9005-F16 AS Drives, Brückner Maschinenbau, Coperion- Pfleiderer, Koellmann Gear, Pekrun, PIV-Brevini, Renk, Rossi, Flender, SKET Verseilmaschinen, Sumitomo-Hansen, further	Silicone-free, mineral oil based high- performance gear oils with Surftec®-technology for closed industrial gears, roller and sliding bearings at high loads, prevention of micro-pitting and pittings, improvement of the running-in behaviour, re-smoothing of damaged friction surfaces, recommended for mild climates and constant temperature conditions
Gear Oil CKT 68 ... 1000	51517/3 (CLP) CKT 68 ...150: 51524/3 (HVLP)	ISO 11158 / EN ISO 6743-4: HV ISO 12925-1 (E) (CKE) ISO 6743-6 (E) (CKE) DIN ISO 3448	-30 / +120	PIV Drives, Schlosser Pfeiffer, Staebli	Fully synthetic gear oils based on PAO for closed gears with dip feed and circulation lubrication, long-term usage, for increased demands on high and low temperature behaviour
Poly Gear PG 100 ... PG 680	51517/3 (CLP)	ISO 12925-1 (E) (CSPG, CTPG) ISO 6743-6 (E) (CSPG, CTPG) DIN ISO 3448	up to +180	Brückner Maschinenbau, C.H. Schäfer Getriebe GmbH, Koellmann Gear, Lingl, Pekrun Standard 8053, Pulsgetriebe, Schlosser Pfeiffer	Fully synthetic bearing and gear oils of PAG-type (on polyalkylene glycol basis) especially for roller and sliding bearings and high loads, ideal for worm gears
Gear oil 100 ... 680 F	51517/3 (CLP)	ISO 12925-1 (E) (CKC, CKD) ISO 6743-6 (E) (CKC, CKD) DIN ISO 3448	up to +100	ANSI/AGMA 9005-E02, Brückner Maschinenbau, David Brown, Pekrun Standard 8053, Pulsgetriebe, ISO VG 150...680: Flender Getriebe, Reintjes: BV 1597/4, BV 1917/4	Mineral oil based gear oils for nearly all types of closed industrial gears with spur or bevel gearing, sliding and roller bearings, also for splash or circular lubrication, for high loads and applications with the impact of foreign material
Gear Oil CLP 68 ... CLP 680	51517/3 (CLP) CLP 68, 100: 51524/2 (HLP)	ISO 12925-1 (E) (CKC) ISO 6743-6 (E) (CKC) DIN ISO 3448 CLP 68, 100: ISO 11158 / EN ISO 6743-4: HM	up to +100	PIV-Brevini, Reifenhäuser, SKET Verseilmaschinen	Mineral oil based lubricating oils for the lubrication of closed industrial gear systems with spur, bevel or worm gearing, roller and sliding bearings exposed to normal loads, dip feed and circulation lubrication
NatureProof Gear 68 ... 460	51517-3 (CLP)	ISO 12925-1 / ISO 6743-6 (E) (CKES)	-30/+120 (short-term up to +150)	OECD 301 B > 60 % (in 28 days)	Biodegradable industrial gear oils based on saturated esters, very resistant to ageing, excellent air and water separation capacity, low foaming tendency, for closed gears with circulation or splash lubrication, suitable for long-term use

ADDINOL Eco Gear

where standard lubricants fail

ADDINOL Eco Gear M and S contain the unique Surftec®-technology designed to meet the challenges of heavy-duty applications:

INCREASED LOAD CARRYING CAPACITY

Surftec® adapts to changing load conditions in the toothing and increases its load carrying capacity significantly. Therefore, load carrying tooth flanks of the gear pairs are optimally protected against wear, material removal, pitting and fatigue even at increased loads.

PD-EFFECT STOPS PROGRESSIVE ABRASION

ADDINOL Eco Gear M and S are perfectly fit for hardened and ground gear teeth prone to micropitting under extreme loads as well as tempered surfaces. Even surfaces pre-damaged by micropitting and pitting are smoothed thanks to the PD-effect (Plastic Deformation); progressive metal abrasions are transformed into regressive ones.

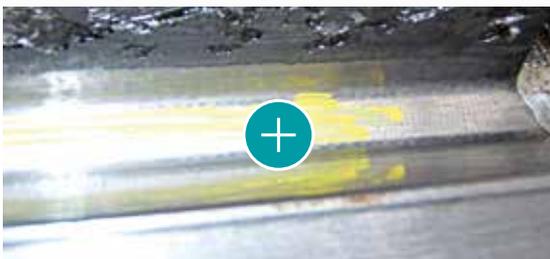
ADDINOL Eco Gear GLS* combines the best of two different requirement profiles: exceptional load carrying capacity typical of automotive transmission oils on API GL-5 level and longest service intervals required of industrial gear oils. It has been designed for gears in heavy-duty applications in off-highway and mining trucks.

- ✓ Highest load-carrying capacity
- ✓ Long-term wear protection
- ✓ Significant reduction of friction coefficient and power loss
- ✓ Reliable corrosion protection
- ✓ High shear stability for stable lubricating film over long intervals

View into a gear box before and after 5 months



Sharp edges and pittings: the applied gearbox oil was not up to the typically prevailing loads.



Evident smoothing of the tooth flanks after changing to Eco Gear after 5 months.

TYPICAL INDUSTRIAL APPLICATIONS

- EP performance **moderate**
- Oil life **10,000 to 50,000 oh**
- VI improver **no or low percentage**
- Zinc or calcium **low**

EP PERFORMANCE

DURATION

- EP performance **high**
- Oil life **3,000 to 5,000 oh**
- VI improver **moderate to high percentage**
- Zinc or calcium **high**

TYPICAL AUTOMOTIVE APPLICATIONS

* There are two variants of Eco Gear GLS available: Eco Gear GLS 68 ... 680 and Eco Gear GLS 75 W 90/75 W 110. They have to be selected according to application and OEM requirements.

STABILISATION OF PRE-DAMAGED GEARS

Production of cement clinker from limestone and clay



Location

Cement plant, Germany

Application

Cement mill

Gearbox in use

Symetro gear unit type TS 1700B from F. L. Smidth & Co. A/S

Operating hours

7,000 / year

Lubricant used

ADDINOL Eco Gear 320 M

Challenge

Progressive pitting caused by conventional CLP gear oil of competitor after 10 years, rough and cracked gear flanks, millimetre-thick layer of metal chips on floor of gear unit, looming total breakdown of gear

Results

With changeover to Eco Gear 320 M a significant improvement of the gear flank condition could be achieved. Sharp edges were rounded and visibly smoothed, oil analysis showed a clear reduction of wear elements. The load bearing capacity of the gear was regained. With this, the replacement investment for a new gear of approximately EUR 700,000 could be avoided.

SIGNIFICANT REDUCTION OF TEMPERATURE LOADS

Production of various raw materials



Location

Open-cast mining and cement plant, Germany

Application

Discharge conveyor of a crusher in the open-cast limestone mine

Lubricant used

ADDINOL Eco Gear 220 M

Challenge

Monitoring of oil sump temperature in two drives before and after changeover to ADDINOL Eco Gear 220 M.

Results

The temperature could be reduced by 8 to 9°C under comparable operating conditions in both drives thanks to the additive package Surftec[®] and the extremely low friction coefficient. As a rule of thumb: oil ageing doubles per 10°C increase in temperature. With

lowering the oil temperature, the ageing process of the gear oil is considerably delayed, temperature loads on the machine components are reduced.

	Drive 8	Drive 9
Competitor gear oil ISO-VG 220	69.8 °C	69.4 °C
ADDINOL Eco Gear 220 M	60.1 °C	60.7 °C

Hydraulic fluids for power and precision

ADDINOL Hydraulic oils transfer and control forces and movements of machinery in mining and drilling reliably and precisely. ADDINOL offers the optimally adjusted product for each hydraulic system at most difficult operating conditions:

- ✓ Fluids for mobile and stationary machinery
- ✓ Standard fluids for common requirements
- ✓ High-performance fluids tailored to demanding conditions
- ✓ Biodegradable fluids for ecologically sensitive areas
- ✓ Flame resistant hydraulic fluids

Your benefits with ADDINOL hydraulic fluids



Meet highest quality standards



Reliable wear and corrosion protection



Excellent thermal-oxidative stability for long oil change intervals



Efficient water separation



Excellent VT-behaviour for wide temperature range



Good compatibility with sealings

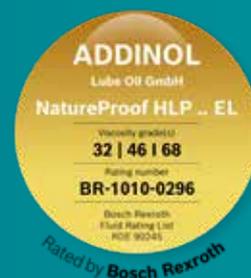
ADDINOL NatureProof HLP EL

The first of its kind

In ecologically sensitive areas such as mining, where technical failures or leaks can inevitably have a direct impact on flora, fauna and groundwater, the use of environmentally friendly hydraulic oils is mandatory. ADDINOL's biodegradable hydraulic fluids based on saturated esters combine maximum technical performance with minimum environmental impact. They ensure reliable lubrication under high loads and do not pose a risk to the environment.

BOSCH REXROTH: the most demanding practical test

Bosch Rexroth, one of the leading manufacturers of hydraulic power units, has developed its own motor and pump tests to simulate practical conditions when using high-pressure pumps and to test the properties of fluids under extreme conditions. These requirements go far beyond the minimum standards of DIN ISO 15380:2020-12. By passing these tests, the hydraulic fluids of the NatureProof HLP EL series have displayed their reliable protection of the components against wear and fatigue ensuring a stable operation.



ADDINOL	DIN	Approvals	free of zinc	Application
Standard fluids protecting against corrosion and wear				
Hydraulic oil HLP 10 ... 100	51524-2 (HLP)	ISO VG 32 ... 68: Bosch-Rexroth RD 90220		Mineral base oils, stationary and mobile equipment, suited for high pressures, good demulsibility, can also be used for bearings and gears
Hydraulic oil HLPD 10 ... 68	51524-2 (HLP)	ISO VG 22: F.X. Meiller	☑	Mineral base oils, ideal for mobile plants working under the impact of water, dirt and dust, detergent properties, recommended for pneumatic tools
Hydraulic oil HVLP 15 ... 68	51523-3 (HVLP)	ISO VG 32 ... 68: fulfils: Bosch-Rexroth RD 90220		Mineral base oils, outdoor hydraulics in all-season use and at strongly varying temperatures, high shear stability, good demulsibility
Energy efficient hydraulic fluids				
HV Eco Fluid 32 ... 68	51523-3 (HVLP)			Mineral base oils, outdoor hydraulics in all-season operation, stable viscosity-temperature behaviour over long intervals, outstanding friction behaviour, energy saving potential
HV Eco Fluid AF 32 ... 68	51523-3 (HVLP)		☑	Mineral base oils, outdoor hydraulics in all-season operation, stable viscosity-temperature behaviour over long intervals, outstanding friction behaviour, energy saving potential, for damp ambient conditions
Fluids for the application in ecologically sensitive areas				
NatureProof HLP EL 32 ... 68	51524-3 (HVLP) TOST-test acc. to DIN EN ISO 4263-3	Bosch Rexroth Fluid Rating List RDE 90245, EU Ecolabel DE/027/330 (ISO VG 32, 46), Swedish Standard SS 15 54 34 OECD 301 B > 60 % (in 28 days)	☑	Based on saturated esters, excellent hydrolytic and thermal-oxidative stability, for use in ecologically sensitive areas
NatureProof HLP S 15 ... 68	51524-3 (HVLP) TOST-test acc. to DIN EN ISO 4263-3	Bosch Rexroth RDE 90245 BR-1010-0267, meets: Eaton/Vickers 35VQ25A Pump Test OECD 301 B > 60 % (in 28 days)	☑	Based on saturated esters, excellent hydrolytic and thermal-oxidative stability, for use in ecologically sensitive areas
Fluids for fire hazard plants				
Hydraulic Fluid HFC 32-46	6743-4 (HFC) ISO 12922		☑	Based on polyglycol-water-solution, for plants in mining involving fire hazards, improved protection against corrosion and wear
Hydraulic Fluid HFD U 46, 68	6743-4 (HFD U) ISO 12922	OECD 301 C > 60 % (in 28 days)	☑	Based on ester, free of water, for plants in mining involving fire hazards, usage in ecologically sensitive areas
EcoShield HF-FR 46, 68	6743-4 (HFD U) ISO 12922	OECD 301 B > 60 % (in 28 days)	☑	Based on polyalkylene glycols (PAG), free of water, hydrolytic stability, for plants in mining involving fire hazards, usage in ecologically sensitive areas



FULLY COMPLIANT WITH ECO STANDARDS

The EU Ecolabel confirms the compliance with strict environmental requirements:

- high biodegradability acc. to OECD 301 B > 60 %
- low ecotoxicity
- no bioaccumulation

On top of these standards, ADDINOL NatureProof HLP EL is approved acc. to Swedish Standard SS 15 54 34 and listed in the RISE list.

Transmission and engine oils for excavators, wheel loaders, dumpers & co.

Wheel loader, excavator, dumper and further machinery in mining are exposed to heavy loads and shocks, dust and dirt as well as humidity making components prone to wear and corrosion. Usually they operate in stop-and-go mode and under varying conditions. To ensure their stable and reliable performance, they require safe lubrication and maximum protection. ADDINOL engine and transmission oils master these requirements: They ensure reliable lubrication for both cold starts and high temperature operation, efficient protection against wear and corrosion, excellent ageing stability as well as safe transmission of loads and pressures.

- ✓ Wide range for manifold requirements in engines and transmissions
- ✓ Ideal for heavy loads, dust, dirt and humidity
- ✓ Low-, Mid- and High-SAPS engine oils suited for exhaust treatment technology
- ✓ Transmission oils for transfer, intermediate and auxiliary transmissions

ADDINOL	SAE	API	OEM-Approvals	Product description
Transmission Oils				
GH 75 W 90 SL	75W-90	GL-5, MT-1	MAN 341 Z2, 342 S1; ZF TE-ML 02B, 05A, 12L, 12N, 16F, 17B, 19C, 21A; DTFR 12B140 (MB 235.8); fulfils: DTFR 13B110 (MB 235.11), DTFR 12B110 (MB 235.20); BMW (Non LS); Mack GO-J; Volvo 97312; DAF/DAF Xtreme; Iveco; Renault; Bosch TE-ML 08; ZF TE-ML 05B, 07A, 21B; Kessler; Scania STO 1:0/2:0G/2:0 A FS; MIL-L-2105 D, MIL-PRF-2105 E; SAE J2360	Fuel-efficient total driveline oil with extended oil drain intervals, suited for heavy-duty vehicles
GH 75 W 90	75W-90	GL-5/GL-4	fulfils: VW G 050 145, G 050 150 (G 50); Volvo 97316 (G0101); MB 235.7; Bosch TE-ML 08; MIL-L-2105 D; ZF TE-ML 07A	Automotive transmission oils for transfer, intermediate and auxiliary transmissions in motor vehicles and machines, particularly for hypoid drives with large offset, for non-synchronised manual transmissions
GH 80 W 90	80W-90	GL-5	ZF TE-ML 07A, 16B, 17B, 19B, 21A; Voith Turbo 132.00374400; MB 235.0; Bosch TE-ML 08; MIL-L-2105 D	
GH 85 W 90	85W-90	GL-5	ZF TE-ML 07A, 16C, 17B, 19B, 21A; Voith 132.00374400; fulfils: DTFR 12B100 (MB 235.0); Kessler; MAN 342 M1; Bosch TE-ML 08; MIL-L-2105 D	
GH 75 W 140	75W-140	GL-5	fulfils: ARVIN Meritor 076-M; Mack GO-J; MIL PRF 2105 E; SAE J2360; Scania STO 1:0/2:0 A; ZF TE-ML 05A, 07A, 12N, 16F, 21A; JCB 4000/4800; MS 8985; Volvo Penta DP-G/DPR/DPH-C, 97312 (FEC); Bosch TE-ML 08; MIL-L-2105 D	
GH 80 W 140	80W-140	GL-5	fulfils: Volvo 97310; ZF TE-ML 05A, 07A, 12E, 16C, 21A; Bosch TE-ML 08; MIL-L-2105 D	
Eco Gear GLS 75 W 90 Eco Gear GLS 75 W 110	75W-90 75W-110	GL-5	AS Drives; Siemens Traction Gears GmbH; VOITH Turbo 132.00374401 (SAE 75W-90); DB, ÖBB, SBB – Q1 certified	Transmission oils for bevel and swing gears as well as wheel set and axle gearboxes with exceptional load bearing and scuffing load capacity, for critical and varying conditions
Fluid TO-4	10W 30 50	GL-4, CF	SAE 30; ZF TE-ML 03C, 07F fulfil: Allison C4, Allison TES-439; Caterpillar TO-4, Komatsu KES 07.868.1; ZF TE-ML 03C, 07F; DANA-OHTM-TO	Universal transmission fluid for power trains, power shift clutches, wet brakes and hydraulics of construction machinery and heavy off-road vehicles, preferred use in Caterpillar construction machines of the latest generation

Function Fluids				
Antifreeze CHB			fulfils: AFNOR 15-601; ASTM D3306; BS 6580:2010; FVV R 530:2005; GB 29743:2013 (PC); JIS K2234:2018; O-Norm1; Alfa Romeo, Fiat, Lancia 9.55523; BMW LC 18, LC 87, LC 97; Chrysler MS-7170; CNH Case IH Agriculture JIC-501; Cummins 85T8-2; Deutz DQC CA-14; DTFR 29C120 (MB 325.5); Ford ESD-M97B49-A; Iveco 18-1830; MAN 324 Typ NF & Typ Si-OAT; MTU MTL 5048; Opel / Vauxhall GME L1301; Tesla; Volvo 128 6083/002; VW TL-774 C, D, F, G, J, L (G11, G12, G12+, G12++, G13, G12evo); recommended for: DTFR 29C100 (MB 325.0)	High-quality, modern radiator protection agent, can be used in all heat exchangers in combustion engines, hybrid and electric vehicles, highest chemical stability, reliable corrosion protection, frost protection individually adjustable according to mixing ratio with water, colour: green

ADDINOL	SAE	ACEA	API	TBN (mg KOH/g)	OEM-Approvals	Product description
Engine Oils						
Professional 0530 E8/E11	5W-30	E8, E11 (incl. E6, E7, E9)	CK-4/SN	10.3	Deutz DQC IV-18 LA; DTFR 15C110/ 120 (MB 228.51/52); Mack EOS-4.5; MAN M 3677/3691/3775/3275-1; Renault VI RLD-3; Scania LDF-4; Volvo VDS-4 (incl. VDS-3); DAF PSQL 2.1 E LD; fulfils: Caterpillar ECF-3; Cummins CES 20086/20081; DDC 93K218/222; DTFR 15C100 (MB 228.31); Ford WSS-M2C- 213-A1; Iveco 18-1804 TLS E9; Mack EO-M Plus/EO-N Premium Plus; MTU 3.1; Scania Low Ash; Renault RGD/RXD/RLD/RLD-2; Volvo CNG; JASO DH-2	Synthetic base oils, Low SAPS character, meets strict Euro V and VI emission standards, especially recommended for modern commercial vehicle engines, ideal for low temperatures
Professional 1040 E8/E11	10W-40	E8, E11	E8, E11	10.3	Volvo VDS 4.5; Mack EOS-4.5; Renault VI RLD-3; DTFR 15C110 (MB 228.51); MAN M 3775; Deutz DQC IV-18 LA; Caterpillar ECF-3; MTU 3.1; fulfils: Caterpillar ECF-2/1a; CNH MAT 3571/3521; Cummins CES 20086/20081; DAF; DDC 93K222; Iveco; MAN 3575/3275-1/3477; Scania Low Ash; JASO DH-2	Semi-synthetic base oils, Mid SAPS character, suited for Euro V standards (at low sulphur content in the fuel) as well as Euro VI standards in Iveco and Volvo diesel engines, suitable for DPF, SCR and EGR
Super Truck MD 1049	10W-40	E4/E7	CI-4	15.5	Scania LDF-3; Volvo VDS-3; MAN M 3277; DTFR 15B120 (MB 228.5); MTU 3; Renault VI RLD-2; Deutz DQC IV-18; Mack EO-N; fulfils: Cummins CES 20077/78; DAF	Synthetic base oils, High SAPS character, suited for Euro IV and V standards (Euro VI only for Scania diesel engines)
Super Longlife MD 1047	10W-40	E7,A3/B4	CI-4/SL	11.3	Caterpillar ECF-2; Deutz DQC III-18; DTFR 15B110 (MB 228.3); Mack EO-N; MAN M 3275-1; MTU 2; Renault VI RLD-2; Volvo VDS-3; fulfils: Cummins CES 20076/77/78; DAF; DDC 93K215; DTFR 13D110 (MB 235.28); Fiat-Iveco; MB 229.1; Voith Retarder B; JASO DHD-1; Global DHD-1	Mineral base oils, High SAPS character, supports extended oil change intervals, for all-season operation in highly charged engines at heavy operating conditions, fulfils Euro III emission standards
Professional 1540 E8/11	15W-40	E8, E11 (incl. E6, E7, E9)	CK-4	10.3	Caterpillar ECF-3; Deutz DQC III-18 LA; Mack EOS-4.5; DTFR 15C100 (MB 228.31); Renault VI RLD-3; Volvo VDS 4.5; fulfils: CNH MAT 3571/3521; Cummins CES 20086/20081; DAF; DDC 93K222; Iveco; John Deere JDQ 78x/78A; MAN 3775/3575/3275-1; MTU 2.1; JASO DH-2	Mineral base oils, High SAPS character, supports extended oil change intervals, for all-season operation in highly charged engines at heavy operating conditions, fulfils Euro III emission standards
Diesel Longlife MD 1548	15W-40	E7	CI-4 Plus/SL	11.2	Deutz DQC III-18; DTFR 15B110 (MB 228.3); Mack EO-N; MTU 2; Renault VI RLD-2; Volvo VDS-3; fulfils: Caterpillar ECF-2; Cummins CES 20076/77/78; DAF; DDC 93K215; Fiat-Iveco; Mack EO-M Plus; MAN M 3275-1; Global DHD-1	Mineral base oils, High SAPS character, meets the Euro III emission requirements

Why the TBN is important

The alkaline reserve defines the capacity of the engine oil to neutralise acid components. Acid components in the oil accelerate oil oxidation, increase viscosity and cause corrosive wear. A reliable operation and long service lives can only be achieved with an efficient control of acid components. With a good alkaline reserve, also variations in fuel quality can be compensated. For fuels with high sulphur content ADDINOL offers the specially tailored engine oil ADDINOL Diesel Power 1548 M. With a TBN of 17 mg KOH/g it provides increased neutralising capacity.



Greases for highest loads

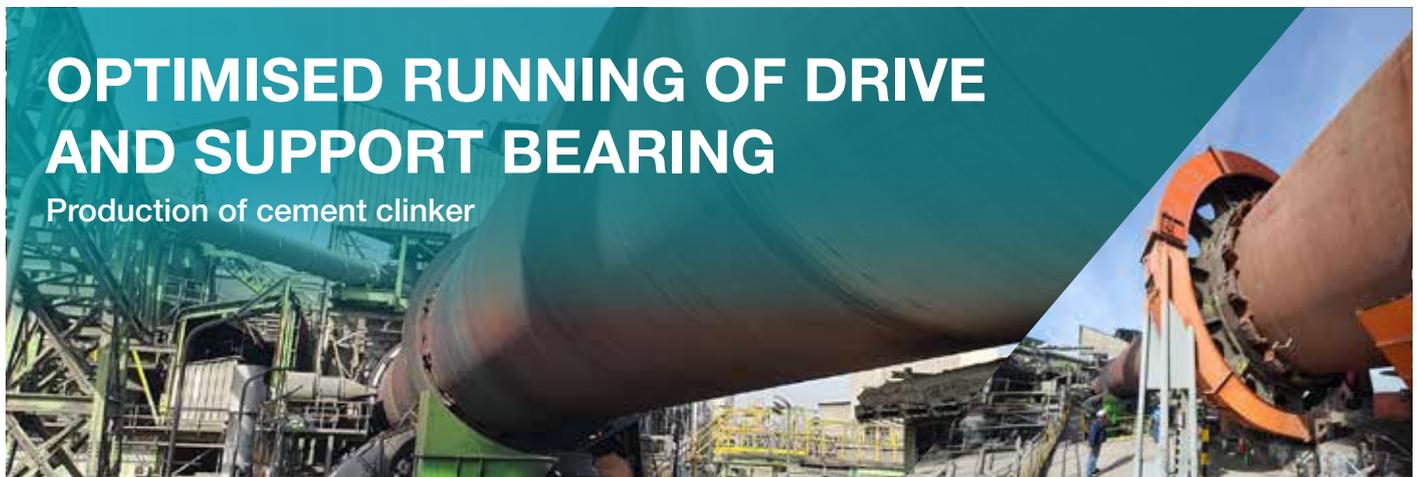


ADDINOL greases and pastes are tailored to difficult conditions, such as extreme temperatures, strong dust exposure or humidity. They ensure both trouble-free run and

operational safety. They protect against contaminants and corrosion, absorb impact loads and secure long component lifetimes.

ADDINOL	Thickener type	Base oil type	NLGI grade	Base oil viscosity at 40°C	Service temp. (min./max)	DIN tagging / Product description
For roller and plain bearings						
Multi-Purpose Grease L 2 MO	Li-soap	Mineral oil	2	155 mm ² /s	-30°C / +130°C	KPF2K-30 / Multi-purpose grease containing EP-additives for lubrication of roller and plain bearings, suited for high pressure loads. Contains a combination of the solid lubricants graphite and MoS ₂ .
Hightemp EK 2	Li-complex	Mineral oil	2	170 mm ² /s	-30°C / +150°C	KP2P-30 / Multi-purpose grease containing EP-additives for lubrication of roller and plain bearings, suited for high pressure loads and high temperatures. Suitable for wheel bearing lubrication in commercial vehicles and passenger cars. Meets the requirements of MAN 284 Li-H2, MB 265.1, Volvo STD 1277,18 and Volvo STD 1277,2.
Longlife Grease HP 2	Li-Ca-soap	Mineral oil	2	400 mm ² /s	-25°C / +140°C	KP2N-20 / Multi-purpose grease for lubrication of roller and plain bearings under high loads and/or shock loads, stable under the influence of water.
Eco Grease PD 2-400 Plus	Li-complex	Synthetic oil mixture	2	400 mm ² /s	-40°C / +160°C	KPHC2P-40 / High-performance grease containing a PD-additive package based on ADDINOL Surftec®-technology, application where small oscillating movements cause high loads on components, prevents micro-pitting and surface damages, very low friction coefficients and optimum wear protection, suited for high pressure loads.
Hightemp XFT 2 Plus	Polyurea	Ester oil/PAO	1-2	460 mm ² /s	-30°C / +180°C	KPHC1-2R-30 / Synthetic heavy-duty grease for high temperature conditions and the impact of water, very good corrosion protection.
Hightemp HD 2 SL	Li-complex	Semi-synthetic	2	600 mm ² /s	-25°C / +150°C	KPF2N-20 / Semi-synthetic grease with white solid lubricants for roller and plain bearings, exceptional welding load for heavy-duty applications, above-average mechanical stability and pressure absorption capacity, fit for humid environments
Wear Protect SDE 2	Ca-soap	Semi-synthetic	2	800 mm ² /s	-30°C / +120°C	KP2K-30 / Semi-synthetic heavy-duty grease, exceptional adhesion, very high water resistance, excellent anti-corrosion properties.
For open gears						
Adhesive Lubricant OG 0	Al-complex	Mineral oil	0	1.000 mm ² /s	-20°C / +200°C	OGPF0S-20 / Graphite-containing fluid grease with high base oil viscosity and wide service temperature range. Provides high load carrying capacity, excellent water resistance and very good adhesion. Suitable for automatic spray lubrication of open gears, gear rims and toothed racks in heavy-duty applications.
Combiplex OG 0-2500	Al-complex	Semi-synthetic	0	2.500 mm ² /s	-20°C / +200°C	OGPF0S-20 / Graphite-containing fluid grease with high base oil viscosity and wide service temperature range. Provides high load carrying capacity, excellent water resistance and very good adhesion. Suitable for automatic spray lubrication of open gears, gear rims and toothed racks in heavy-duty applications.

ADDINOL	Thickener type	Base oil type	NLGI grade	Base oil viscosity at 40°C	Service temp. (min./max)	DIN tagging / Product description
For environmentally sensitive areas						
NatureProof BHG 0	Bentonite	Ester oil	0	25 mm ² /s	50°C / +100°C	GPFE0G-50 / Biodegradable bentonite grease containing EP-additives with high load carrying capacity and good anti-corrosion properties. Designed for the lubrication of buffer heads and open lubrication points. OECD 301 F > 60 % (in 28 days)
NatureProof CA 2	Ca-soap	Rapeseed oil	2	36 mm ² /s	20°C / +80°C short-term up to +110	KE2E-20 / Readily biodegradable lubricating grease based on vegetable oil. Reliable protection against corrosion. Suitable for use at loss lubrication points, where excess and displaced grease may penetrate into the ground or waterways. OECD 301 B > 60 % (in 28 days)
NatureProof Super 2 LE	Li-soap	Ester oil	2	100 mm ² /s	35°C / +120°C	KPE2K-30 / Readily biodegradable lubricating grease based on synthetic ester oil. Fit for heavy loads. Suitable for use at loss lubrication points, where excess and displaced grease may penetrate into the ground or waterways. Approval: Viper WRL Systems OECD 301 B > 60 % (in 28 days)
NatureProof RG 1	Li-Ca-soap	Ester oil	1	110 mm ² /s	50°C/+110°C	KPFE1K-50 / Rapidly biodegradable special grease based on synthetic esters, contains light-coloured solid lubricants, ideal for the lubrication of rail heads and flanks in freight transport, suitable for threaded spindles and slideways. OECD 301 C > 60 % (in 28 days)



OPTIMISED RUNNING OF DRIVE AND SUPPORT BEARING

Production of cement clinker

Location

Cement tube mill, Chile

Application

Open gearbox on steel ball mill

Lubricant used

ADDINOL Combiplex OG 0-2500

Challenge

A competitor's product resulted in uneven running, pre-damage to bearings and an increased grease consumption.

Results

After switching to Combiplex OG 0-2500 a smooth running of the ball mill could be achieved after only a short time, vibrations were clearly reduced

and concentricity was improved. The grease is up to high loads and temperatures and ensures high pressure resistance as well as reliable wear protection. Even under highest loads Combiplex OG 0-2500 displays exceptional adhesive power, facilitates the sliding movement and improves force distribution. Grease consumption was being reduced.

Service and maintenance

Oils and sprays for trouble-free operation

ADDINOL Compressor oils

- High thermal-oxidative stability
- Effective prevention of coking and residues
- Reliable air and water separation
- High load-carrying capacity
- Excellent wear protection
- Low evaporation losses

ADDINOL	DIN	Approvals, specifications and recommendations	Product description
Compressor oil V 100 ... V 220	51506 (VB) 51517/1 (C)		Mineral oil based, no additives, V 100, V 150: for low and medium pressure piston compressors V 220: medium-pressure piston and cell compressors
Compressor oil VL 150 VL 320	51506 (VCL) 51506 (VBL)		Mineral oil based, ash-containing additives for higher requirements on wear protection, VL 150: compressors operating at low or medium pressure VL 320: for high-pressure piston and cell compressors, suited for high temperatures and high loads
Compressor oil VDL 46 ... VDL 150	51506 (VDL)	ISO 6743-3 (L-DAH) ISO VG 46, 68: ATMOS Chrast ISO VG 68, 100: Rotorcomp ISO VGL 100, 150: LMF	Mineral oil based, ash-free additives, discharge temperatures up to +220 °C VDL 46, 68: in particular for screw-type and rotary compressors VDL 100, 150: for heavy loaded piston compressors
Compressor oil VDL 32 S ... VDL 100 S	51506 (VDL)	ISO 6743-3 (DAJ) ISO VG 32...68: ATMOS Chrast, ISO VG 46: Rotorcomp, ISO VG 100: MSL Compressor	Fully synthetic, discharge temperatures up to +220 °C, for screw-type compressors and sliding vane compressors

ADDINOL Chain oils

- Highly adhesive, thorough penetration
- Low deposit tendency
- Reliable protection against corrosion and wear
- Excellent thermal-oxidative stability
- Low evaporation loss
- Long operating lives

ADDINOL	V40 (mm ² /s)	Application temperature (°C)	Approvals, specifications and recommendations	Product description
Chain Lube XHT 50 XHT 150 XHT 250 XHT 3000	56 145 249 3200	up to +250	DIN 51517-2 (CL) ISO 12925-1 (E) (CKB) ISO 6743-6 (E) (CKB) XHT 150: Thyssen Krupp Elevators XHT 250: Brückner, DMT, Andritz, Cellier XHT 150, 3000, XHT 3000 Spray: Lingl	High-temperature chain oils based on synthetic esters, universal application at thermally heavy loaded conveyor and driving chains, XHT 250 and 3000 also available as spray

ADDINOL Sprays

In mining industry, often lubricants and release agents are required that can be applied easily and evenly and provide reliable protection even at lubrication points that are difficult to access.

The ADDINOL spray range offers a wide selection of practical service products for a variety of applications which facilitate maintenance, cleaning and repair and extend the lifetime of components.

ADDINOL	Basic substance	Application temperature (°C)	Product description
ACP ADDINOL Care Protect	mixture of hydrocarbons	-54 / +150	Multi-functional spray for versatile application, ideal for lubrication and maintenance, effective protection against corrosion and wear, high penetrating capacity, preservative and cleaning agent, can be used under hot, cold and wet conditions
Anti-Corrosion Spray KO 6-F	mineral oil		Multi-functional anti-corrosion fluid containing solvents, for the temporary protection of metallic surfaces, for tools, rabbets and welds, water-displacing, good penetrating properties
Creep oil spray	mineral oil		Water displacing anti-corrosion fluid for metallic surfaces, for chinks and welds and tools, excellent penetrating capacity, easy loosening of rusted connections, rust remover
Chain Lube XHT 250 Spray XHT 3000 Spray	saturated ester	up to +250	High-temperature oils for the lubrication of conveyor and driving chains exposed to heavy thermal loads as well as sliding pairings in high-temperature applications
Anti-Seize Paste GAL Spray	semi-synthetic oil	-20 / +1200	Assembly paste, semi-synthetic basis, fit for high-temperatures and hot joints, useable as screw, assembly and separating agent, sealing and corrosion protection
Universal cleaning spray	mixture of hydrocarbons		Spray for cleaning and maintenance of metal surfaces, degreasing effect, solves residues on moving parts.

Invincible.



ADDINOL Care Protect

One spray, many applications

ADDINOL Care Protect is a fully synthetic multifunction spray providing excellent corrosion and wear protection. It is ideal for use in the maintenance and repair of units, vehicles and machinery in mining.

- Excellent corrosion protection**
- Stable lubricating film**
- Reliable wear protection**
- High penetrating ability**
- Strong cleaning effect**

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