

# High-Performance Lubricants Mining Industry

**ADDINOL**<sup>®</sup>  
THE ART OF OIL · SINCE 1936

**ADDINOL – Improve the performance**

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# Mining industry

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Dust

Water

Pushes

Vibrations

Variations in temperature

High loads on the equipment

**Special conditions require  
special lubrication!**

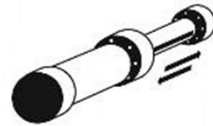


# Mining industry

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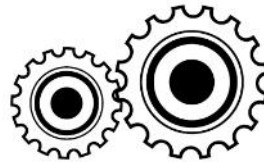
Wheel Loaders/  
Dump Trucks



Crushers



Conveyors



Excavators



Mills



Kilns

# ADDINOL Product range

**ADDINOL**<sup>®</sup>  
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## 650+

High-Performance  
Lubricants

[www.addinol.de](http://www.addinol.de)

GERMAN  
QUALITY



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

# ADDINOL Product range

**ADDINOL**<sup>®</sup>

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## 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 Product range

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- Longlife Grease HP 2
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- Combiplex OG 0-2500
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- HV Eco Fluid 32, 46
- HLP 10 ... HLP 100
- HVLP 15 ... HVLP 68
- HLPD 10 ... HLPD 68

## 6 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



## Outstanding performance



Reliable lubrication even under extreme operating conditions



Maximum wear protection



Best possible friction behaviour



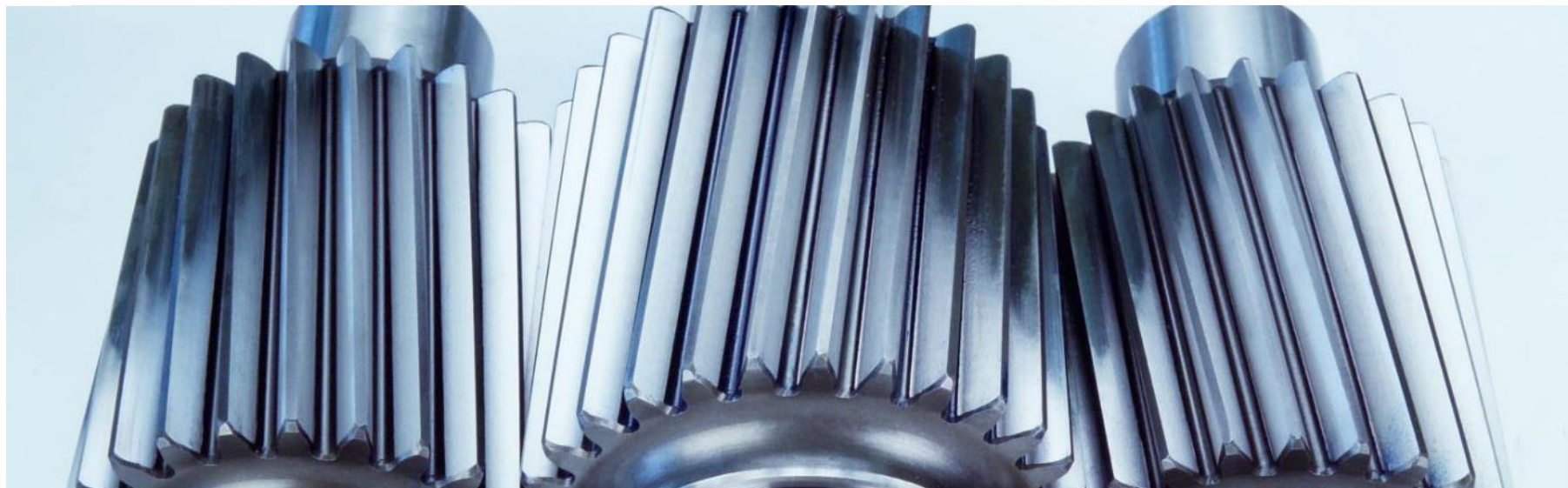
Highest scuffing load capacity



Reduction of gear power dissipation



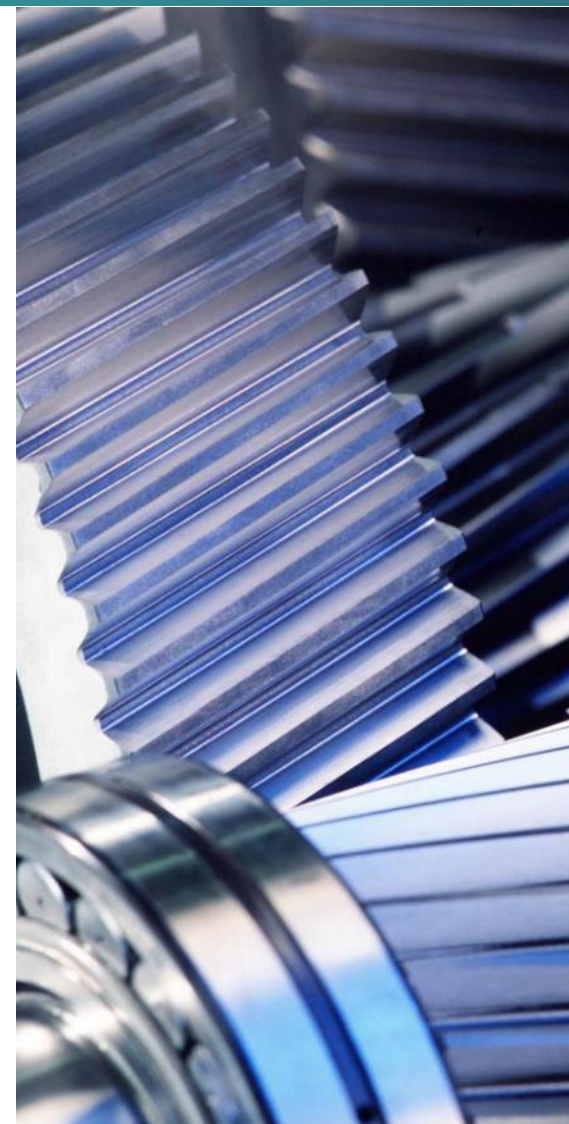
High temperature resistance



# ADDINOL Gear Oils

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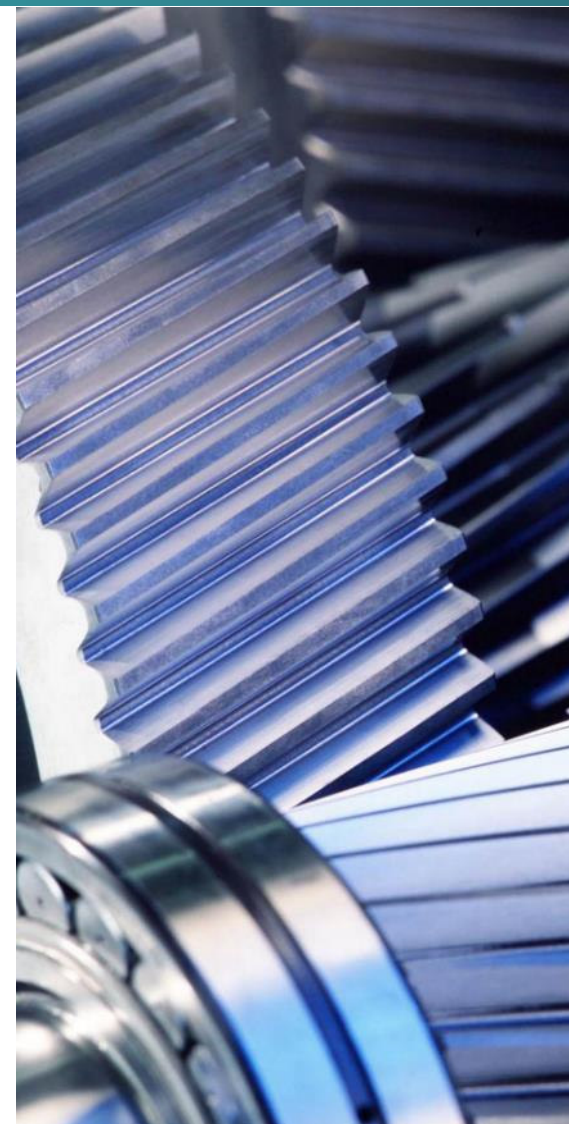
<b>ADDINOL</b>	<b>DIN</b>	<b>ISO</b>	<b>Application temp. (min./max.) (°C)</b>	<b>Approvals, specifications and recommendations</b>	<b>Product description</b>
<b>Eco Gear GLS 68 ... 680</b>	51517/3 (CLP)	ISO 12925-1 (E) (CKE) ISO 6743-6 (E) (CKE) DIN ISO 3448	-30 / +120 (short-term up to +150)	ANSI/AGMA 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
<b>Eco Gear 68 S-T 100 S ... 680 S</b>	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, Zellfelder 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
<b>Eco Gear 100 M ... 680 M</b>	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
<b>Gear Oil CKT 68 ... 1000</b>	51517/3 (CLP) CKT 68 ...150: 51524/3 (HVL P)	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, Staeubli	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



# ADDINOL Gear Oils

**ADDINOL**  
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<b>ADDINOL</b>	DIN	ISO	Application temp. (min./max.) (°C)	Approvals, specifications and recommendations	Product description
<b>Poly Gear PG 100 ... PG 680</b>	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
<b>Gear oil 100 ... 680 F</b>	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
<b>Gear Oil CLP 68 ... CLP 680</b>	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
<b>NatureProof Gear 68 ... 460</b>	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



90  
JAHRE  
YEARS

GERMAN  
QUALITY

WORLDWIDE

## Eco Gear M & S

... effective against wear

- in heavy loaded gears, where a formation of micro pittings is possible
- in gears pre-damaged by micro pittings, pittings etc.

**Eco Gear M:** Ideal for mild climates and constant temperature conditions: *-10 °C up to +100 °C*

**Eco Gear S:** Masters varying temperatures in a wide range: *-30 °C up to +120 °C*



## Eco Gear M & S

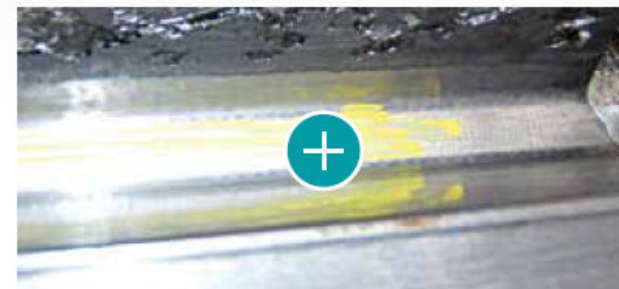
### Increased load carrying capacity

- ✓ adapts to changing load conditions
- ✓ protects load carrying tooth flanks of gear pairs against wear, material removal, pitting and fatigue
- ✓ stops progressive abrasion
- ✓ achieves transformation into regressive abrasion

### 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.



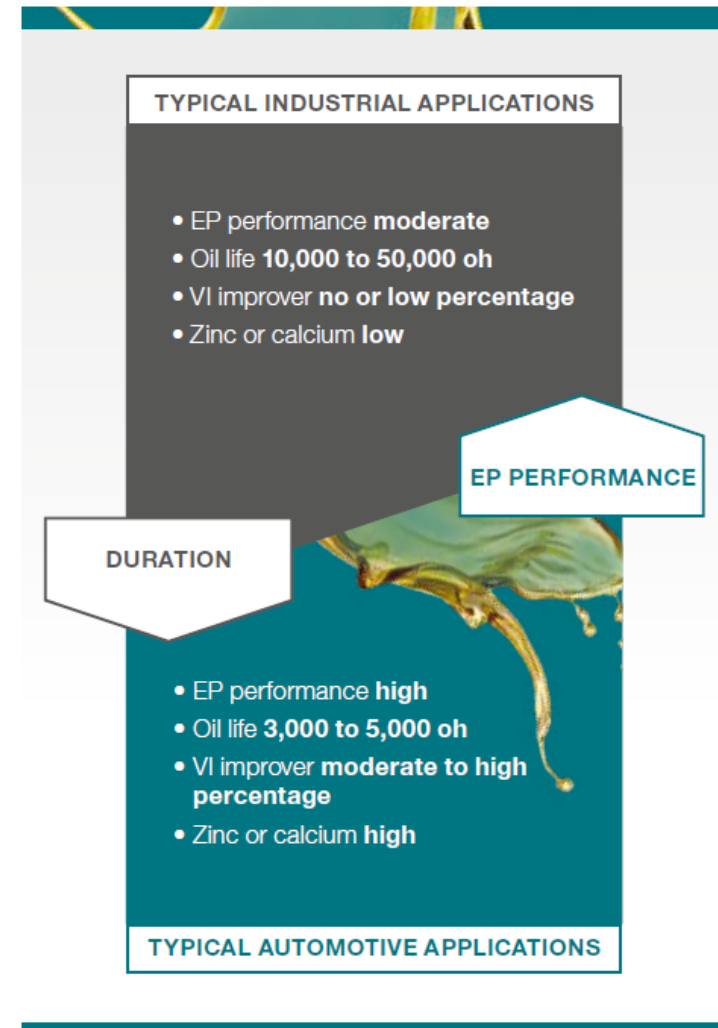
Evident smoothing of the tooth flanks after changing to Eco Gear after 5 months.

## Eco Gear GLS

### Combination of load carrying capacity + duration

- ✓ 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

\* 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.



# ADDINOL Eco Gear in application



## Convincing results from practice ...

**Wittekind Hugo Miebach Söhne KG** is producing high-quality cements and special binders for almost 100 years.

Place: Erwitte, Germany

### Cement mill:

- Symetro gear unit type TS 1700B from F. L. Smidth & Co. A/S - operating hours approximately 7,000 hours a year.

### Situation:

- operated with a conventional mineral gear oil (CLP) from a competitor
- progressive pitting was repeatedly ascertained
- A millimetre-thick layer of metal chips on the floor of the gear unit
- **operator expected a total breakdown and replacement investment amounting to approximately EUR 700,000**



# ADDINOL Eco Gear in application

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## Convincing results from practice ...

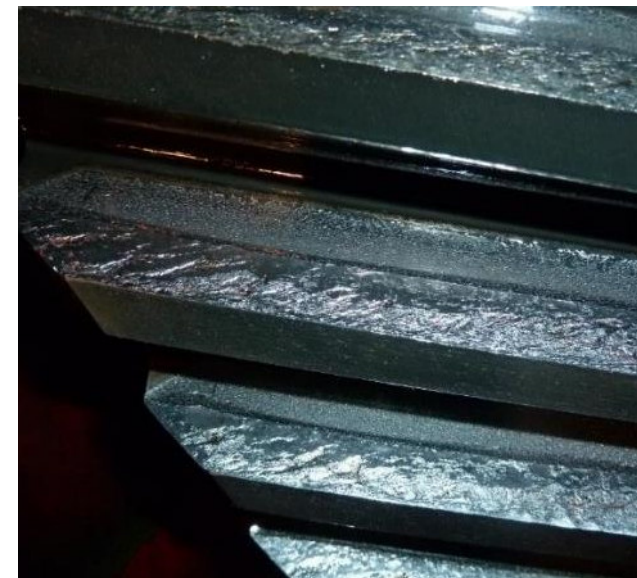
### ADDINOL inspection:

- surfaces of all load-bearing gear flanks were rough and cracked
- conventional CLP gear oil was obviously unable to form a stable lubricating film under the high loads
- millimeter-thick layer of metal chips on the floor of the gear unit provided evidence of the inadequate load-bearing capacity of the previously used lubricant.

### Solution:

#### Change to ADDINOL Eco Gear M with regular oil sampling and oil analyses

- condition of the gear flanks had significantly improved
- sharp edges of the breaks were rounded, smoothing had occurred
- risk of further wear was eliminated
- steadily and fault-free operation



# ADDINOL Eco Gear in application

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## Convincing results from practice ...

**CEMEX Deutschland AG** with over 100 locations in Germany offering mineral raw materials such as gravel, sand and grit, as well as cement, ready-mix concrete and construction chemicals.

Place: Rüdersdorf, Germany

Discharge conveyor at a crusher:

- Two drives (No. 8 and 9) of a conveyor
- Competitor gear oil Esso Spartan EP 220

Situation:

use of a thermal imaging camera before and after the changeover to ADDINOL Eco Gear



# ADDINOL Eco Gear in application



	Temperature °C Esso Spartan EP 220	Temperature °C ADDINOL Eco GEAr 220 M
Drive 8	69.8	60.1 ↓
Drive 9	69.4	60.7 ↓

The temperature could be reduced by 8 to 9°C under comparable operating conditions in both drives.

**Rule of thumb:**  
Oil ageing doubles by every temperature increase of 10°C.

The reduction of every single degree Celsius counts!!

**CEMEX** Datum: 06.06.2008 Anlagenbezeichnung: OTK  
 Standort: Brecher Tagebau  
 Werk: x Rüdersdorf Eisenhüttenstadt Antriebsnummer: Antrieb 08 und 09  
 Maschinen - Bezeichnung: Brecherabzugband  
 Messgerät: TVS-100  
 Mängel festgestellt durch: MAD  
 Mängel festgestellt am: Mängel beschrieben:

Untersuchungsmethoden:  Thermografie  optische Überprüfung

**Diagnoseerheblich - Messbericht**  
 Antrieb 08 max. Temp.: 60,1°C (vor Ölwechsel 69,8°C) mit Addinol ECO GEAR 220M

Antrieb 09 max. Temp.: 60,7°C (vor Ölwechsel 69,4°C)

Umgebungstemperatur: 20°C

Zuständigkeit / verantwortlicher Melder:  
 Empfehlung/ Bemerkung: Der Antrieb 08 hat im Vergleich mit 09, nach dem Ölwechsel, eine um 1°C niedrigere Temperatur als davor.  
 Die Temperatur ist insgesamt um ca. 10°C niedriger als vor dem Ölwechsel.

Priorität:  sofort reparieren  nächster gepl. Stillstand  nächster Monat  nächste Jahresrevision  zur Information

Schaden beheben am: Schaden beheben durch: SAP Meldenummer:



# ADDINOL Hydraulic fluids

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## Outstanding performance



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



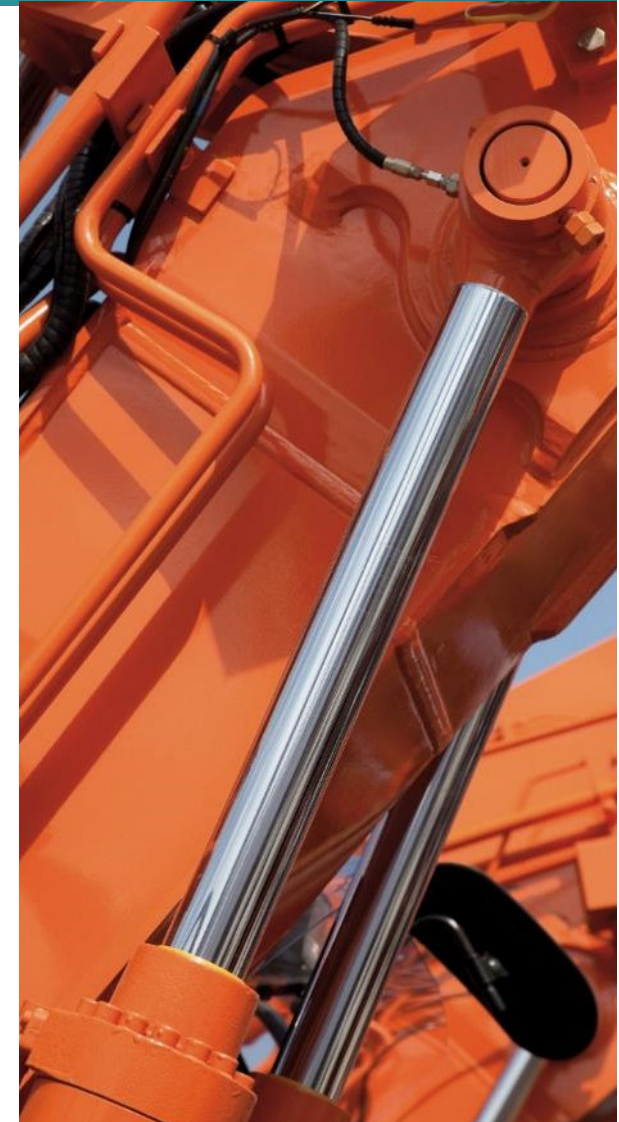
Good compatibility with sealings



# ADDINOL Hydraulic Fluids

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<b>ADDINOL</b>	DIN	Approvals	free of zinc	Application
<b>Standard fluids protecting against corrosion and wear</b>				
<b>Hydraulic oil HLP 10 ... 100</b>	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
<b>Hydraulic oil HLPD 10 ... 68</b>	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
<b>Hydraulic oil HVL P 15 ... 68</b>	51523-3 (HVL P)	ISO VG 32 ... 68: fulfills: Bosch-Rexroth RD 90220		Mineral base oils, outdoor hydraulics in all-season use and at strongly varying temperatures, high shear stability, good demulsibility
<b>Energy efficient hydraulic fluids</b>				
<b>HV Eco Fluid 32 ... 68</b>	51523-3 (HVL P)			Mineral base oils, outdoor hydraulics in all-season operation, stable viscosity-temperature behaviour over long intervals, outstanding friction behaviour, energy saving potential
<b>HV Eco Fluid AF 32 ... 68</b>	51523-3 (HVL P)		☑	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
<b>Fluids for the application in ecologically sensitive areas</b>				
<b>NatureProof HLP EL 32 ... 68</b>	51524-3 (HVL P) 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
<b>NatureProof HLP S 15 ... 68</b>	51524-3 (HVL P) 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
<b>Fluids for fire hazard plants</b>				
<b>Hydraulic Fluid HFC 32-46</b>	6743-4 (HFC) ISO 12922		☑	Based on polyglycol-water-solution, for plants in mining involving fire hazards, improved protection against corrosion and wear
<b>Hydraulic Fluid HFD U 46, 68</b>	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
<b>EcoShield HF-FR 46, 68</b>	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



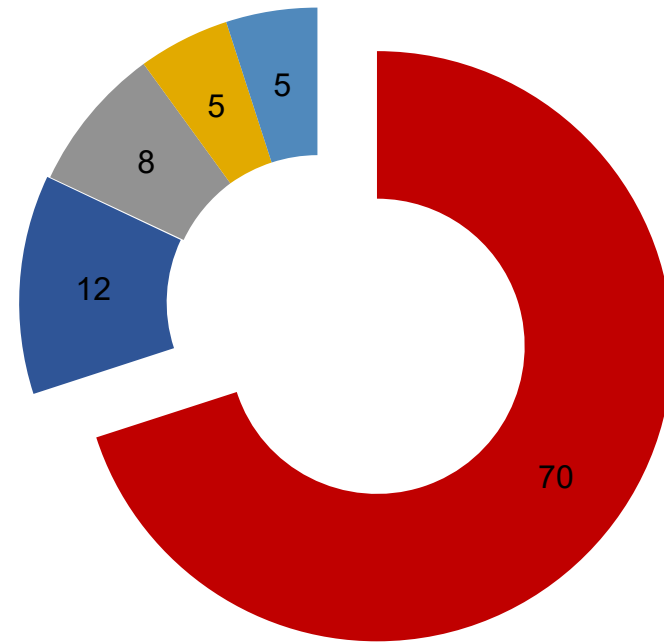
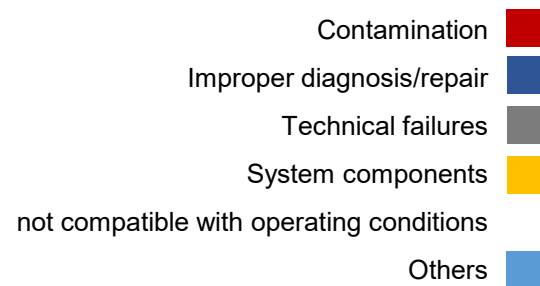
# Requirements Hydraulic Fluids

**ADDINOL**  
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## Cleanliness class:



contaminations are the  
**main causes of operating faults**  
in the hydraulic system



# Requirements Hydraulic Fluids



## Cleanliness class:

according DIN 51524-2

for HLP at least **21/19/16** = maximum values that may be present in an oil sample of 100 ml

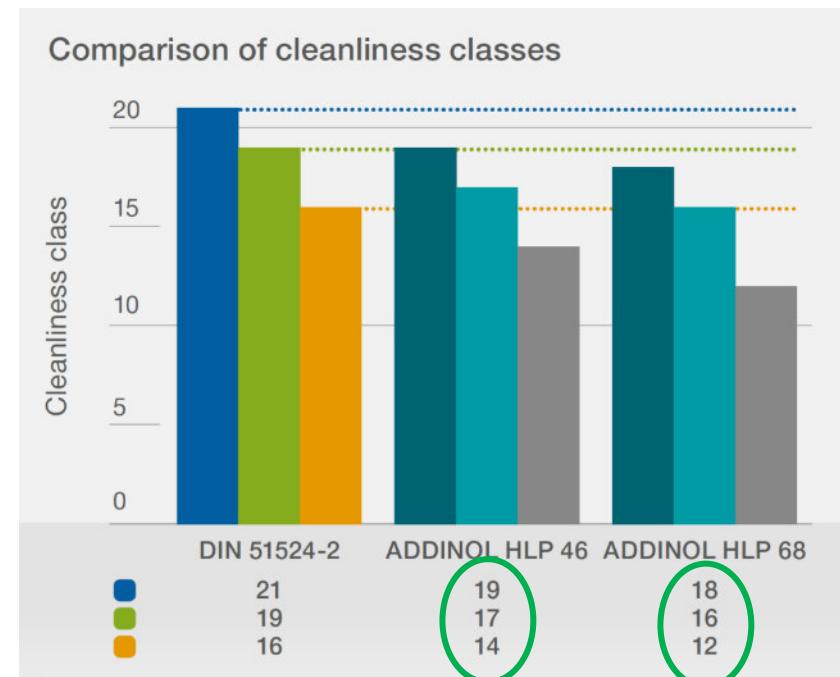
“21” refers to particles > 4 µm,

“19” refers to particles > 6 µm

“16” refers to the large particles > 14 µm

an excellent **cleanliness class indicates**  
how carefully it was produced and filled.

**The outstanding values of the  
cleanliness classes of ADDINOL  
hydraulic oils speak for themselves.**



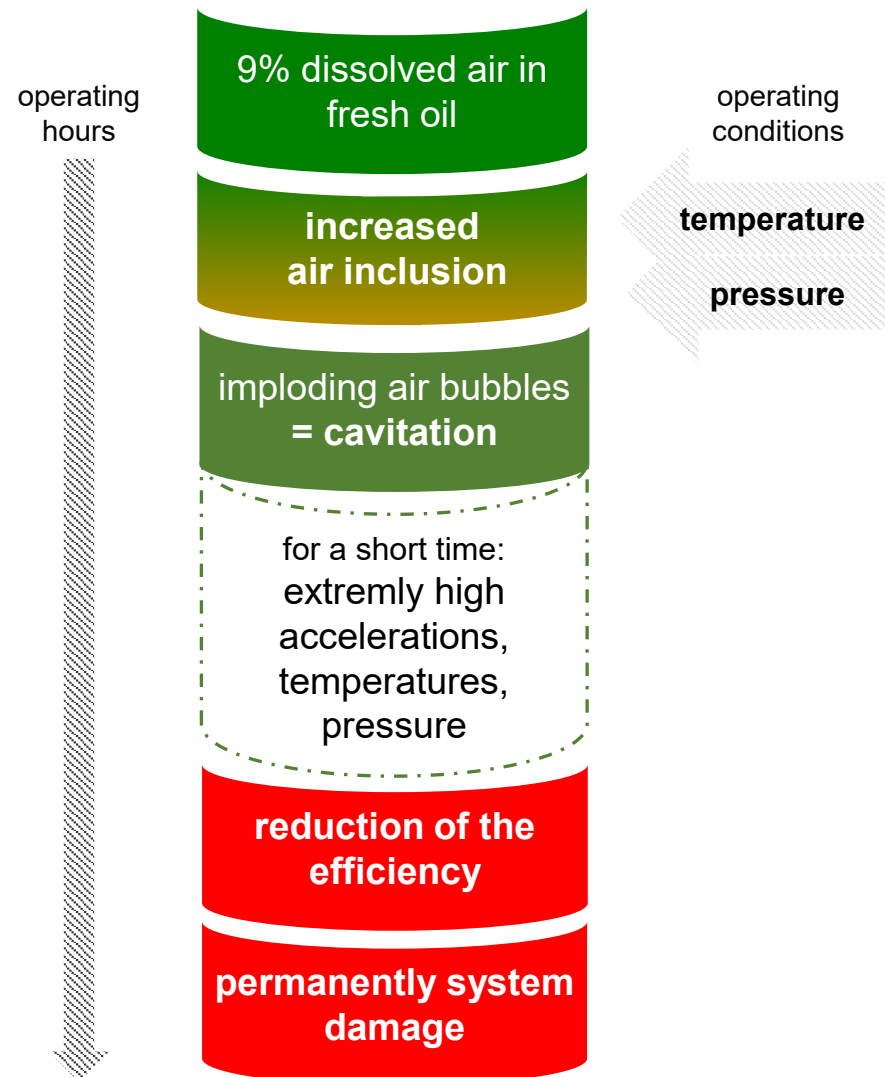
# Requirements Hydraulic Fluids

## Air release property:

- defines the period of time in minutes after which the air dispersed in the oil is separated again down to a residual content of 0.2% by volume



**increased air inclusion causes faster oil oxidation, control problems (compressibility) and cavitation**



# Requirements Hydraulic Fluids

## Air release property:

according to ISO 9120 at 50 °C

air release property for HLP 46: max. 10 minutes

air release property for HLP 68: max. 13 minutes



**The smaller the value, the better!**

**The quality products from ADDINOL are far faster than is specified in the DIN.**



# Requirements Hydraulic Fluids

## Demulsibility

- specifies how quickly the oil separates from dispersed water to avoid, fastening oil oxidation, foaming and corrosion in the system

according to DIN ISO 6614 at 54 °C:

demulsibility < 30 minutes (for ISO-VG 46)

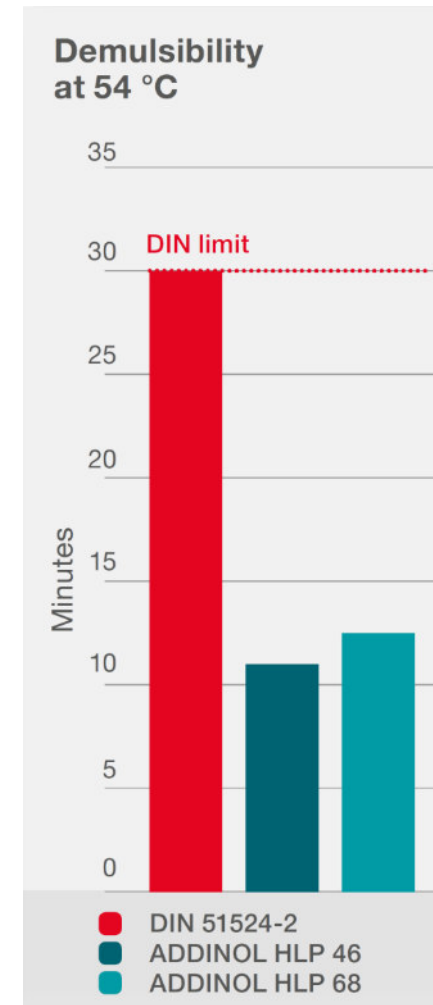


**The smaller the value, the better!**

opposite effect:

hydraulic oils of the category HLPD:  
must have a dispersive and detergent action,

→ keeping any fluid that has penetrated very finely distributed and make it float

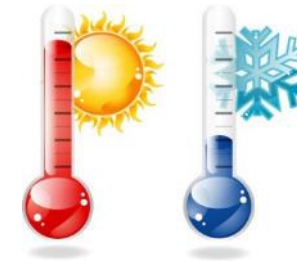


# Requirements Hydraulic Fluids



## Viscosity

- high viscosity index
- outstanding low-temperature behaviour
- excellent high-temperature-viscosity-performance



Characteristic	HLP 46	HVLP 46	HV ECO FLUID 46
Viscosity at 40 °C	46 mm <sup>2</sup> /s	46 mm <sup>2</sup> /s	46 mm <sup>2</sup> /s
Viscosity at 100 °C	6,9 mm <sup>2</sup> /s	8,7 mm <sup>2</sup> /s	8,9 mm <sup>2</sup> /s
Viscosity index	105	170	176
Pour point*	- 30 °C	- 39 °C**	- 36 °C

\* Pour point: temperature at which oil becomes semi-solid and loses its flow characteristics

\*\* HVLP: special product for applications at low temperatures

## ADDINOL HV Eco Fluid with extended multi-grade characteristics



# Requirements ADDINOL Hydraulic Fluids



## Shear behaviour

- optimum and constantly high viscosity immediately when operating temperature is reached and at all operating conditions
- reduction of losses related to pumping and return flow

Characteristic	HVLP 46	HV ECO FLUID 46
Shear behaviour at 40°C / 20h acc. to KLR test	15,3 %	13,6 %
Shear behaviour at 100°C / 20h acc. to KLR test	19,0 %	15,9 %



## ADDINOL HV Eco Fluid for energy-efficiency and longlife



# Requirements Hydraulic Fluids

**ADDINOL**  
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## Brugger value

- reduction of wear
- lowered costs and effort for maintenance



Characteristic	HLP 46	HVLP 46	HV ECO FLUID 46
Brugger value	27 N/mm <sup>2</sup>	31 N/mm <sup>2</sup>	35 N/mm <sup>2</sup>

**ADDINOL HV Eco Fluid higher loadability under mixed friction**



# Biodegradable Hydraulic Fluids



**ADDINOL**  
THE ART OF OIL • SINCE 1936

## Biodegradability

= *ability of organic chemicals to be broken down biologically, i.e. by living organisms or their enzymes*

## Ready biodegradability

= *test method of the test series OECD 301 (A-F)*

Important in ecologically sensitive areas where lubricants could be released into the environment in case of technical failure or leakages

- Agriculture, Forestry
- Municipal services
- Construction and mining industry
- Water protection areas



# Biodegradable Hydraulic Fluids



Adapting the performance profile to the requirements of the machines

- Compact designs
- High pressures
- Reduced volumes
- Short oil retention time
- High temperatures
- Water impact



**Greatest Durability**

Minimise the impact on the environment, flora and fauna and human health in the event of leaks or accidents

- Biodegradability
- Low ecotoxicity
- Non-bioaccumulative



**Best Environmental Compatibility**

# NatureProof HLP EL

**ADDINOL**<sup>®</sup>

THE ART OF OIL • SINCE 1936

**ADDINOL**

Lube Oil GmbH

**NatureProof HLP .. EL**

Viscosity grade(s)

**32 | 46 | 68**

Rating number

**BR-1010-0296**

Bosch Rexroth  
Fluid Rating List  
RDE 90245

Rated by **Bosch Rexroth**





## Multi-grade character

- ✓ Improved multi-grade character
- ✓ High-quality saturated ester base oils with a high native viscosity index
- ✓ Stable temperature-viscosity behaviour even under heavy loads
- ✓ Energy-efficient operation in a wide temperature range



# NatureProof HLP EL



## Bosch Rexroth Fluid Rating Test



RFT-APU-CL

Rexroth Fluid Test

Axial Piston Unit

Closed Loop

*Motor and pump tests, designed to reproduce practical conditions in the use of high-pressure pumps and to test the properties of fluids under extreme conditions.*



# NatureProof HLP EL



## Bosch Rexroth Fluid Rating Test






**Approval:**  
Bosch Rexroth Fluid Rating List RDE 90245

*Motor and pump tests, designed to reproduce practical conditions in the use of high-pressure pumps and to test the properties of fluids under extreme conditions.*



# Comparison characteristic values



Characteristic value	NatureProof HEES	NatureProof HLP S	NatureProof HLP EL
<b>ISO VG</b>	ISO VG 32, 46	ISO VG 32, 46, 68	ISO VG 32, 46
<b>Recommended temperature range</b>	-20 up to +90 °C -25 up to +90 °C	-30 up to +110 °C	-30 up to +110 °C
<b>Oxidation stability</b>	average	<b>excellent</b>	<b>excellent</b>
<b>Environmentally acceptable (EAL)</b>	acc. to OECD 301 B > 60 %	acc. to OECD 301 B > 60 %	acc. to OECD 301 B > 60 %  <b>Swedish Standard SS 15 54 34 VGP/VIDA</b>
<b>Durability</b>		 <b>Bosch Rexroth Fluid Rating List RDE 90245</b>	 <b>Bosch Rexroth Fluid Rating List RDE 90245</b>

**Price-performance ratio**

good

**very attractive**

**excellent**

NatureProof HLP EL



**KOBELCO**

**HITACHI**

*Further approvals for NatureProof HLP EL  
are in preparation*

 **LIUGONG**

**Kubota**

**KOMATSU**





- **Commercial vehicles and trucks**
- Stationary engines and small technical devices
- Passenger cars
- Four- and two-stroke motorcycles
- Marine and rail vehicles

...customized to individual application requirements and climatic conditions, covering SAE classes

from

**0W-16**

up to

**20W-50**

# ADDINOL Automotive

# ADDINOL<sup>®</sup>

THE ART OF OIL • SINCE 1936

More than

**200 OEM approvals**

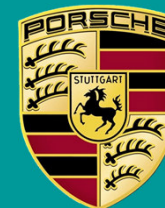
for about 150 products.



Mercedes-Benz



**CATERPILLAR**



PSA PEUGEOT CITROËN



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# ADDINOL Automotive

**ADDINOL**  
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<b>ADDINOL</b>	SAE	ACEA	API	TBN (mg KOH/g)	OEM-Approvals	Product description
<b>Engine Oils</b>						
<b>Professional 0530 E8/E11</b>	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
<b>Professional 1040 E8/E11</b>	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
<b>Super Truck MD 1049</b>	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)
<b>Super Longlife MD 1047</b>	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
<b>Professional 1540 E8/11</b>	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
<b>Diesel Longlife MD 1548</b>	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





## ADDINOL Professional 0530 E8/E11 Suitable for EURO V and VI requirements

- Outstanding cold start and warming-up behaviour
- Long lifetime of the engine and the exhaust after-treatment system
- No undue environmental impact by low exhaust emissions
- Superior friction behaviour
- Reduced fuel consumption
- Reduction of different engine oils in the fleet due to common OEM specifications
- Excellent detergent-dispersant behaviour



40





## ADDINOL Professional 0530 E8/E11 Suitable for EURO V and VI requirements

Method	Dimension	Standards	Limits acc. to standards	ADDINOL typical values
Cold Start Behaviour (CCS) [-30°C]	mPas	ASTM D 5293	< 6,600	6,000
Evaporation Loss (Noack)	Ma-%	DIN 51581-1	≤ 13.0	12.0
Alkaline Reserve (TBN)	mg KOH/g	DIN ISO 3771	> 7.0	9.8
Pourpoint	°C	ASTM D 7346	< -40.0	-42.0

Approvals: Deutz DQC IV-18 LA; DTFR 15C110/120 (MB 228.51/52); Mack EOS-4.5; MAN M 3677/3691/3775; MTU 3.1; Renault VI RLD-3; Scania LDF-4; Volvo VDS-4 (inkl./incl. VDS-3)

Fulfills: Caterpillar ECF-3; Cummins CES 20086/20081; DAF PSQL 2.1 E LD; 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; MAN M 3575/3275-1/3477/3271-1; Scania Low Ash; Renault RGD/RXD/RLD/RLD-2; Volvo CNG; JASO DH-2



## ADDINOL Professional 1040/1540 E8/E11

- Excellent for lubricating high-turbocharged turbo diesel engines in trucks, construction and agricultural machinery with exhaust aftertreatment systems Very good corrosion and wear protection
- Reduction of lubricant-related exhaust gas and particle emissions
- **Improved friction behaviour for reduced fuel consumption**
- **Wide and universal range of application**
- Outstanding ageing and shear stability





## ADDINOL Professional 1040/1540 E8/E11

### Suited for

- ✓ Euro V engines in combination with low sulphur content in diesel fuel
- ✓ Euro VI engines of Iveco and Volvo

### Spezifikationen

- ✓ ACEA E8/E11
- ✓ API CK-4

### Approvals

Caterpillar ECF-3, Deutz DQC IV-18 LA, DTFR 15C110 (MB 228.51), Mack EOS-4.5, MAN M 3775, MTU Oil cat. 3.1 (10W-40), Renault VI RLD-3, Volvo VDS-4.5

### Meet the requirements of

- ✓ Case New Holland CNH MAT 3571/3521/3522
- ✓ Caterpillar ECF-2/-1-a
- ✓ Cummins CES 20086/81
- ✓ DAF (acc to. OEM in line with ACEA E6)
- ✓ Detroit Diesel DDC 93K222
- ✓ Iveco (acc to. OEM in line with ACEA E6)
- ✓ JASO DH-2
- ✓ MAN M 3275-1/ M 3477/ M 3575
- ✓ MTU Oil cat. 2.1
- ✓ further



## ADDINOL Professional 1040/1540 E8/E11

Method	Dimension	Standards	Limits acc. to standards	10W-40 typical values	15W-40 typical value
Cold Start Behaviour (CCS) [-25(10W),-20°C(15W)]	mPas	ASTM D 5293	< 7,000	<b>5900</b>	<b>4800</b>
Evaporation Loss (Noack)	Ma-%	DIN 51581-1	≤ 13.0	<b>7,9</b>	<b>6,7</b>
Alkaline Reserve (TBN)	mg KOH/g	ASTM D 2896	> 7.0	<b>10.1</b>	<b>10.3</b>
Pourpoint	°C	ASTM D 7346	< -33	<b>-40</b>	<b>-40</b>



## ADDINOL Diesel Longlife MD 1548 Heavy duty engine oil meets EURO III

- Excellent engine cleanliness, high engine lifetime
- Outstanding protection against friction, mechanical and corrosive wear
- Long oil lifetime due to best thermal-oxidative stability
- Reduction of oil consumption and emissions
- Suitable for trucks, heavy commercial vehicles in construction industry, agriculture and forestry





## ADDINOL Diesel Longlife MD 1548 Heavy duty engine oil meets EURO III

Method	Dimension	Standards	Limits acc. to standards	ADDINOL typical values
Cold Start Behaviour (CCS) [-25°C]	mPas	ASTM D 5293	< 7,000	<b>3,200</b>
Evaporation Loss (Noack)	Ma-%	DIN 51581-1	≤ 13.0	<b>10.0</b>
Alkaline Reserve (TBN)	mg KOH/g	DIN ISO 3771	> 9.0	<b>11.2</b>
Pourpoint	°C	ASTM D 7346	< -27.0	<b>-42.0</b>

**ACEA E7, API CI-4 Plus, Global DHD-1, Jaso DH-1**

**Approvals:**

Deutz DQC III-18, DTFR 15B110 (MB 228.3), MACK EO-N, MTU Oil cat. 2, Renault VI RLD-2, Volvo VDS-3

**Meets:** Caterpillar ECF-2, Cummins CES 20076/77/78, DAF, DDC 93K215, Fiat-Iveco, MACK EO-M Plus, MAN M 3275-1

## 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 Longlife 1548 M. With a TBN of **17 mg KOH/g** it provides increased neutralising capacity.



# ADDINOL Automotive

**ADDINOL**  
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<b>ADDINOL</b>	SAE	API	OEM-Approvals	Product description
<b>Transmission Oils</b>				
<b>GH 75 W 90 SL</b>	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
<b>GH 75 W 90</b>	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
<b>GH 80 W 90</b>	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	
<b>GH 85 W 90</b>	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	
<b>GH 75 W 140</b>	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 400Q/4800; MS 8985; Volvo Penta DP-G/DP/DPH-C, 97312 (FEC); Bosch TE-ML 08; MIL-L-2105 D	
<b>GH 80 W 140</b>	80W-140	GL-5	fulfils: Volvo 97310; ZF TE-ML 05A, 07A, 12E, 16C, 21A; Bosch TE-ML 08; MIL-L-2105 D	
<b>Eco Gear GLS 75 W 90</b> <b>Eco Gear GLS 75 W 110</b>	75W-90 75W-110	GL-5	AS Drives; Siemens Traction Gears GmbH; VOITH Turbo 132.00374401 (SAE 75W-90); DB, 0BB, 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
<b>Fluid T0-4</b>	10W 30 50	GL-4, CF	SAE 30; ZF TE-ML 03C, 07F fulfil: Allison C4, Allison TES-439; Caterpillar T0-4, Komatsu KES 07.868.1; ZF TE-ML 03C, 07F; DANA-OHTM-T0	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
<b>Function Fluids</b>				
<b>Antifreeze CHB</b>			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



## Cooler-Protecting agent

### 3 general basic functions:

#### 1. Frost protection

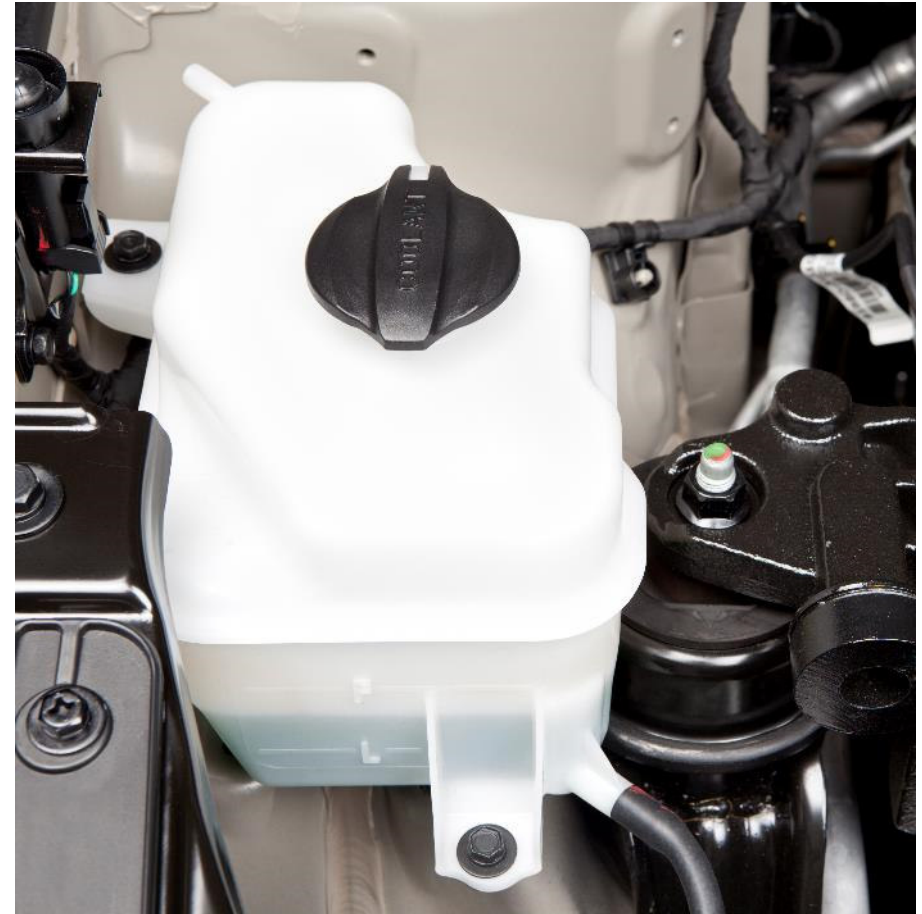
Prevention of damage due to expansion during freezing

#### 2. Boiling protection

Protection against overheating and its consequential damage

#### 3. Corrosion protection

Fit for multi-metal systems



## ANTIFREEZE CHB



### Cooler protection

based on ethylene glycol and a powerful additive package on **Si-OA-technology**

→ Reliable protection against frost, corrosion and cavitation.



### Protection and Compatibility

All metals whether aluminium, cast iron or copper, are reliably protected against corrosion. Moreover, ADDINOL Antifreeze CHB is neutral towards sealing materials and thus reduces the risk of leakages to a minimum.



## ANTIFREEZE CHB



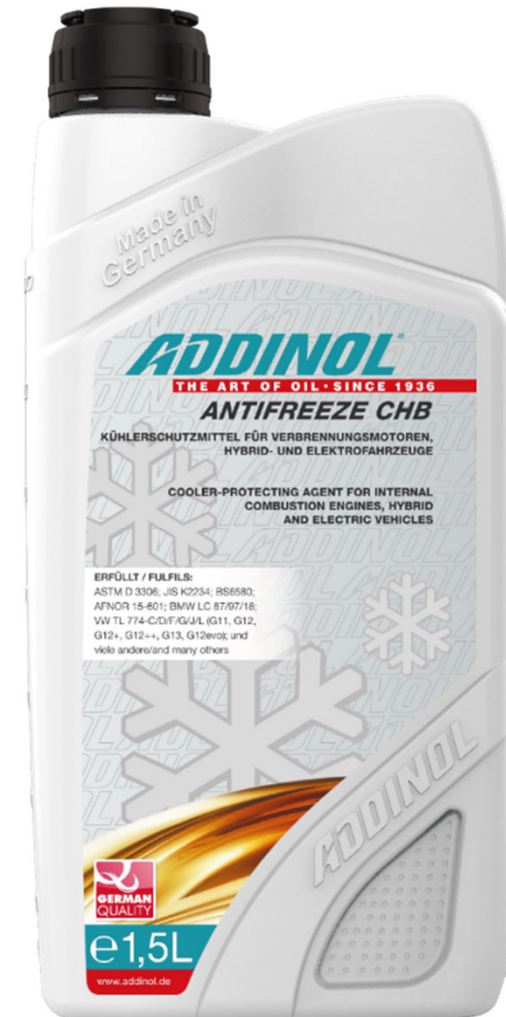
### Minimum foam tendency

Shows lowest foaming tendency and is reliable in practical use.



### Specifications

- AFNOR 15-601
- ASTM D3306
- BS 6580:2010
- FVV R 530:2005
- GB 29743:2013 (PC)
- JIS K2234:2018
- Ö-Norm1



## ANTIFREEZE CHB



### Meets the requirements

- 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)
- Case New Holland CNH MAT 3724/ 3624

# ADDINOL Greases

**ADDINOL**  
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<b>ADDINOL</b>	Thickener type	Base oil type	NLGI grade	Base oil viscosity at 40°C	Service temp. (min./max)	DIN tagging / Product description
<b>For roller and plain bearings</b>						
Multi-Purpose Grease L 2 MO	Li-soap	Mineral oil	2	155 mm <sup>2</sup> /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 <sub>2</sub> .
Hightemp EK 2	Li-complex	Mineral oil	2	170 mm <sup>2</sup> /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 <sup>2</sup> /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 <sup>2</sup> /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 <sup>2</sup> /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 <sup>2</sup> /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 <sup>2</sup> /s	-30°C / +120°C	KP2K-30 / Semi-synthetic heavy-duty grease, exceptional adhesion, very high water resistance, excellent anti-corrosion properties.



# ADDINOL Greases

**ADDINOL**  
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<b>ADDINOL</b>	Thickener type	Base oil type	NLGI grade	Base oil viscosity at 40°C	Service temp. (min./max)	DIN tagging / Product description
<b>For environmentally sensitive areas</b>						
<b>NatureProof BHG 0</b>	Bentonite	Ester oil	0	25 mm <sup>2</sup> /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)
<b>NatureProof CA 2</b>	Ca-soap	Rapeseed oil	2	36 mm <sup>2</sup> /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)
<b>NatureProof Super 2 LE</b>	Li-soap	Ester oil	2	100 mm <sup>2</sup> /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)
<b>NatureProof RG 1</b>	Li-Ca-soap	Ester oil	1	110 mm <sup>2</sup> /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)
<b>For open gears</b>						
<b>Adhesive Lubricant OG 0</b>	Al-complex	Mineral oil	0	1.000 mm <sup>2</sup> /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.
<b>Combiplex OG 0-2500</b>	Al-complex	Semi-synthetic	0	2.500 mm <sup>2</sup> /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 Combiplex OG 0-2500 in application

**ADDINOL**  
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## Optimised running of drive and support bearing

Production of cement clinker

### Place:

Cement tube mill, Chile

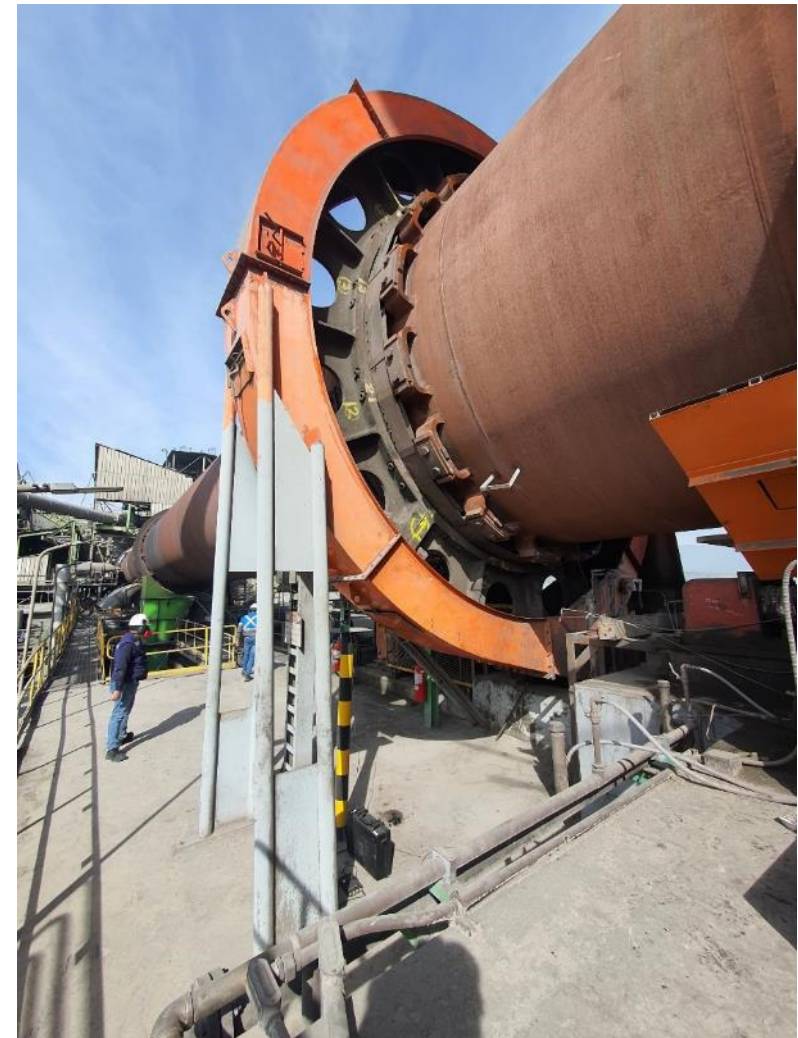
### Situation:

Open gearbox on steel ball mill

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

### Solution:

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.**



# Hightemp XFT 2 PLUS

## Based on polyurea

**ADDINOL**  
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**Application at mining / construction / cement industry:**  
Optimal use in open gears at the raw grinding process

- ✓ Designed for extreme conditions (high temperatures, high loads, low speeds)
- ✓ Ideal for shock loads, sudden movements, high loads, changing conditions, humidity
- ✓ For use in annealing and drying furnaces, rotary kilns, hot-air and exhaust fans, conveyor and painting systems, baking ovens, fan bearings



# Eco Grease PD 2-400 PLUS

## Based on lithium special soaps

**ADDINOL**  
THE ART OF OIL · SINCE 1936

**Application at the mining / construction / cement industry:**  
Optimal use in open gears at rotary tubes and top loader kilns

- ✓ Designed specifically for use under high loads
- ✓ Excellent for long-term or lifetime lubrication, even under extreme conditions
- ✓ Ideally suited for extreme pressures, strong vibrations, temperature fluctuations and shock loads



# Eco Grease PD 2-400 PLUS

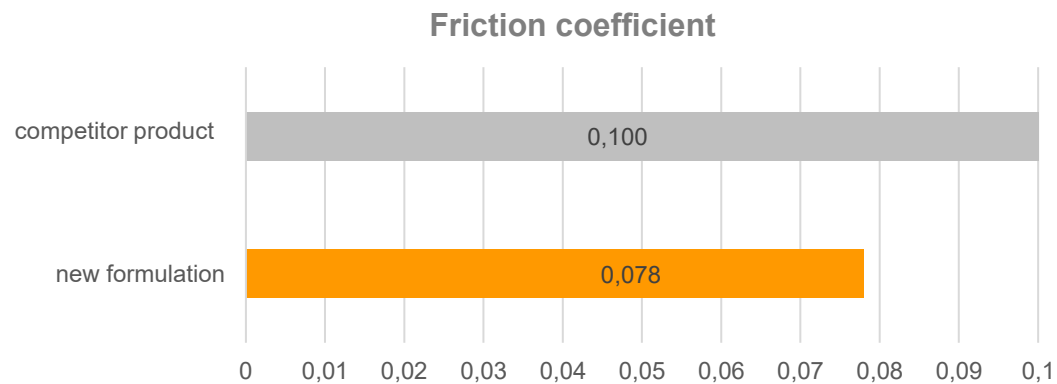
## Based on lithium special soaps

**ADDINOL**  
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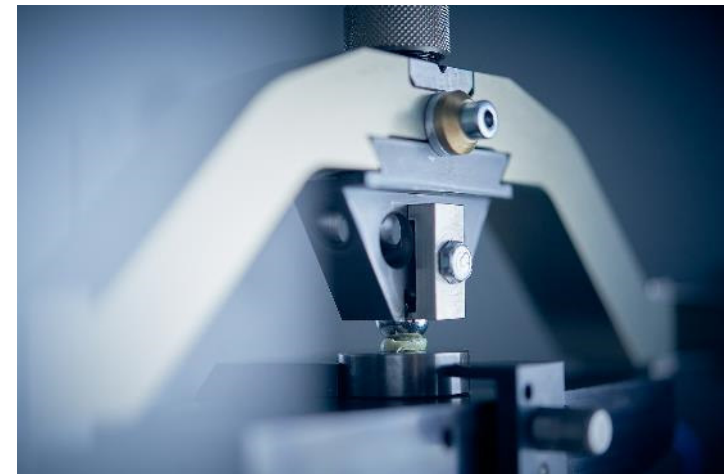
### Optimized friction coefficient

Eco Grease PD2-400 PLUS has an extremely low friction coefficient compared to the competitor product.

- Less friction, less wear, lower heat loss
- Increased efficiency, protection of components



SRV test, DIN 51834-2, conditions: 80 °C; 300 N; 2 h



# Service & maintenance

**ADDINOL**  
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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	V40 (mm <sup>2</sup> /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



90  
JAHRE  
YEARS

GERMAN  
QUALITY

WORLDWIDE

## 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 Chain Lube XHT

- ✓ Highly adhesive, thorough penetration
- ✓ Covers wide viscosity range
- ✓ Largely insensitive to environmental influences (temperature variation, humidity, contamination)
- ✓ Reliable wear and corrosion protection
- ✓ Low evaporation losses
- ✓ Long operating lives



## From all-rounder to expert

- ✓ Extended component lifetime
- ✓ Wide range of sprays
- ✓ Products for maintenance, cleaning and repair



# Your benefits with ADDINOL

**ADDINOL**<sup>®</sup>  
THE ART OF OIL • SINCE 1936



Tailor-made lubricants approved by leading OEM



Stable operation of units and equipment



Cost saving due to increased efficiency



Expert advice on lubricant application



Comprehensive oil analyses



Technical support on-site



Put them to the test!



## High-Performance Lubricants for the cement industry

...are first-rate solutions for all  
challenging applications and

...ensure sustainably reliable  
and cost saving operation of  
our customers valuable plants.

**Put them to the test!**

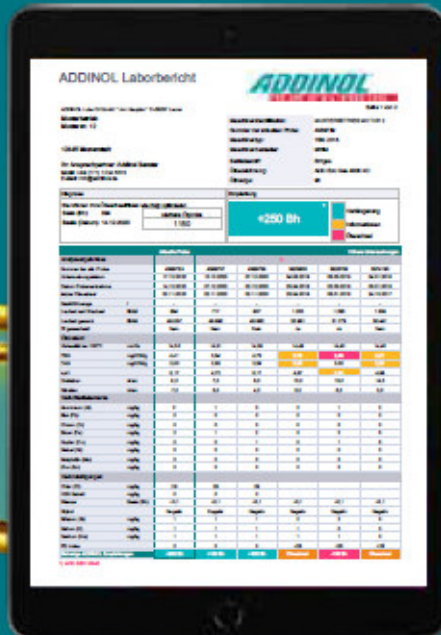
# ADDINOL Service package



## 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**<sup>®</sup>

THE ART OF OIL · SINCE 1936

High-Performance  
Lubricants

650+

