

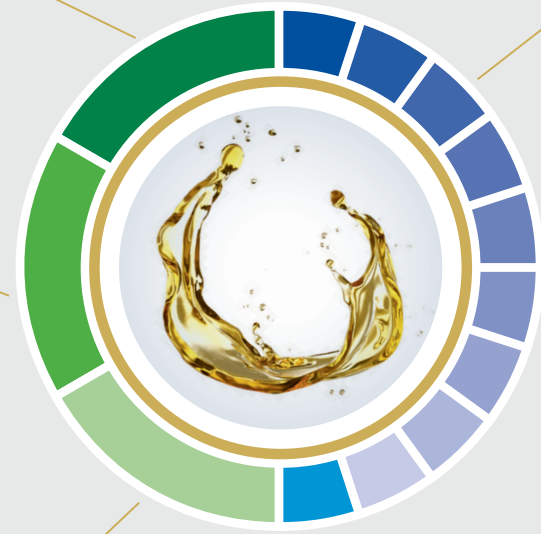
BASF Lubricant Base Stocks and Additives

PAG Base Stocks

- Water-Soluble PAG Base Stocks
- Water-Insoluble PAG Base Stocks
- High Viscosity PAGs (Thickeners)

Ester Base Stocks

- Monoesters
- Diesters
- Polyolesters
- Complex Esters



Lubricant Additives

- Antioxidants
- Viscosity Index Improvers
- Pour Point Depressants
- Friction Modifiers
- Anti-wear / Extreme Pressure Additives
- Corrosion Inhibitors
- Metal Deactivators
- Components for Metalworking Fluids

Polyisobutene

- Low Molecular Weight PIB
- Medium / High Molecular Weight PIB

Industrial Additive Packages

- Hydraulic Packages
- Turbine Packages
- Gear Packages



Our industrial additive packages keep things moving

As a leading global supplier of lubricant base stocks and additives, we are passionate about partnering our customers with strong expertise and best-in-class solutions to meet market requirements today and tomorrow. We are unique in the lubricant industry, offering a broad and extensive portfolio to support the wide range of lubricant applications and enable performance, quality and innovative growth.

Our high performance and reliable components support the drive towards improved fuel economy, extended equipment lifetime and sustainable solutions. Looking to tomorrow, we are committed to continuously developing products that meet the emerging needs of our customers. Leveraging our global production footprint, strong R&D competence and sustainability expertise, BASF is the ideal partner to fulfill your lubricant component needs.

Performance features

- Additive packages that meet or exceed the performance requirements of major OEMs and industry specifications at very low treat rates
- Excellent anti-wear and extreme pressure performance, improved filtration, resistance to varnish, and resistance to oxidation

Sustainability features

- Beneficial labeling profile, i.e. PANA free
- Lower operation complexity and cost
- Excellent wear and corrosion protection enabling long equipment lifetime
- High oxidative stability for longer drain intervals

Cost Savings



Durability



Health and Safety



Resource Efficiency



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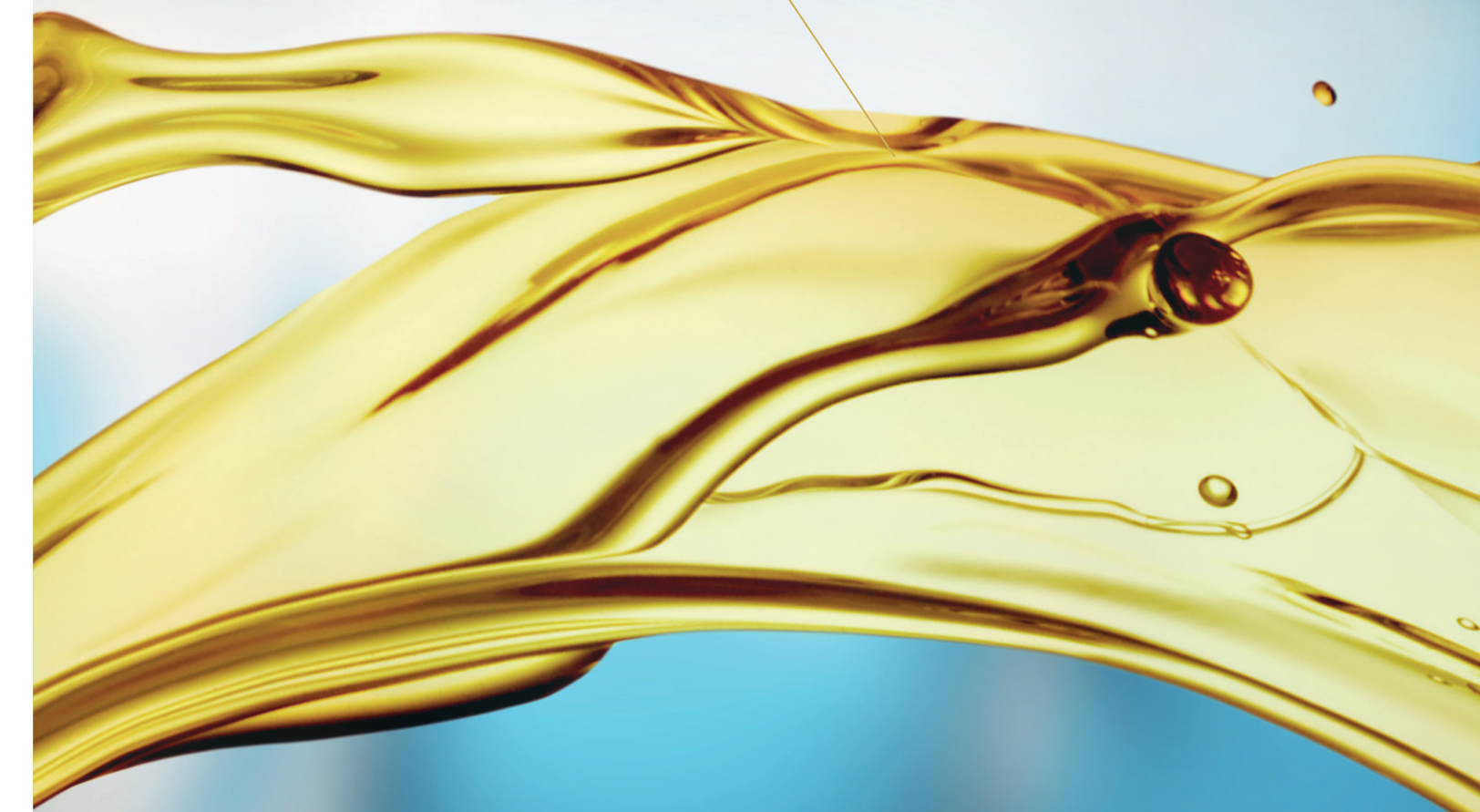
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BASF
We create chemistry

Industrial Additive Packages

Selection Guide

BASF Lubricant Components
Make the difference



Industrial additive packages

Product name	Description
Hydraulic fluid packages	
Irgapac® H 3010	IRGAPAC® H 3010 is a standard grade ashless hydraulic oil package containing antioxidants, corrosion inhibitors, metal deactivators, antiwear / extreme pressure additives, and defoamers.
Irgapac® H 3010 A	IRGAPAC® H 3010 A is a blend of additives to formulate ashless antiwear hydraulic oils and compressor lubricants. It includes demulsifier and antifoam additives.
Irgapac® H 5010	IRGAPAC® H 5010 is a high performance package of ashless additives for antiwear hydraulic fluids and includes a demulsifier.
Turbine and circulating oil packages	
Irgapac® T 820	IRGAPAC® T 820 is an ashless additive package for formulating standard circulating oils.
Irgapac® T 840	IRGAPAC® T 840 is a low phosphorus, zinc-free blend of additives designed for use in general purpose circulating oils.
Irgapac® T 2030 A	IRGAPAC® T 2030 A is an ashless package containing antioxidants, corrosion inhibitors and metal deactivators. It does not contain antifoam or demulsifier.
Irgapac® T 2030 D	IRGAPAC® T 2030 D is an ashless turbine and circulating oil package containing antioxidants, corrosion inhibitors, and metal deactivators. It does not contain antifoam or demulsifier.
Irgapac® T 2050	IRGAPAC® T 2050 is an ashless additive package for premium turbine fluids with outstanding oxidative stability and low sludge. It can provide Group III performance in formulations using Group II base oils, even with exceptionally low treat rates.
Irgapac® T 1668 M	IRGAPAC® T 1668 M is an ashless additive package tailor-designed for high performing turbine fluids. A combination of IRGAPAC® T 1668 M and IRGAFOS® 168 can meet Mitsubishi Power (MP) MS04-CL 005 (Rev.3) requirement in recommended Group III base oil.
Compressor and gear packages	
Irgapac® G 605 A	IRGAPAC® G 605 A is a blend of ashless additives used to formulate EP grade industrial gear oils, hydraulic fluids, and greases. It includes demulsifier and antifoam agents.
Irganox® L 74	IRGANOX® L 74 is a liquid mixture of ashless antioxidants and antiwear additives designed particularly for compressor oils.

■ ■ ■ Best performance
 ■ ■ Good performance
 ■ Adequate performance

[1] Bold font indicates approvals

Performance

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Chemical and physical properties

Treat level wt %	Solubility wt %			Element content wt %			Claims and approvals	
	Mineral oil	PAO	PAG	S	P	N		
0.55	10	5	3	4.6	2.7	1.5	DIN 51524 Part 1/2/3; ISO 11158; JCMAS HK	
0.55	10	1	10	5.4	3.2	1.7	DIN 51524 Part 1/2/3; Eaton Vickers 694 (encompasses former I-286-S, M-2950-S or M-2952-S)	
0.55	5	1	10	2.2	2.8	1.9	Chinese National Standard GB111118.1-2011; DIN 51524 Part 1/2/3; Eaton Vickers 694 (encompasses former I-286-S, M-2950-S or M-2952-S) Denison HFO*	
0.3–0.6	10	1	10	0	0	3.2	AFNOR NFE 48603 HL; Alstom HTGD 90117T; Denison HF 1; MIL-L 17672 D; DIN 51524/1; DIN 51 515; Siemens/KWU TLV 9013 04/01	
0.41	10	1	3	0	0.5	2.2	Alstom HTGD 90117T; Cincinnati Machine P-38, P-54, P-55, P-57, P-68, P-69, P-70; Denison HF-2; Vickers I-286-S; GEK 32568 H; U.S. Steel 126, 127	
0.43	5	3	5	0	0	3.8	ABB-Stal VTI 3200-3, 81 21 08; AFNOR E-48600 HL; Alstom HTGD 90117T; ASTM D 4304, Type II (EP); British Standard 489 (CIGRE); CEGB Standard 207001; Cincinnati Machine P-38, P-45, P-54, P-55, P-57, P-62; DIN 51 524 Part 1 (HL); DIN 51 515 Part 1 (L-TD); DIN 51 515 Part 2 (L-TG); GEK 32568 F; GEK 101941A (FZG/FLS = 8); GEK 107395 A; GEK 28143A; GEK 32568 H; GEK 46506D; MIL-L-17331-B; MIL-L-17672 D; Mitsubishi Heavy Industries E00-87182; Siemens AG TLV 9013 04/01(FZG/FLS = 8); Siemens TLV 9013 04-05; Solar ES9-224U; U.S. Steel 120, 126; Westinghouse 21T0591 and 55125Z3	
0.43	5	5	10	0	0	4.1	ABB-Stal VTI 3200-3, 81 21 08; Alstom HTGD 90117T; Alstom HTGD 90117T; ASTM D 4304, Type I; British Standard 489; Cincinnati Machine P-39; DIN 51 515 Part 1 (L-TD); DIN 51 515 Part 2 (L-TG); GEK 107395 A; GEK 28143B; GEK 32568 H; GEK 46506E; ISO 8068 L-TSA, L-TGA; Siemens AG TLV 9013 04/01(FZG/FLS = 8); Siemens TLV 9013 04-05; Solar ES9-224U; U.S. Steel 120, 126; Westinghouse 21T0591 and 55125Z3	
0.43	1	1	10	0	0.1	4.1	Alstom HTGD 90 117 (non-EP); ANSI/AGMA Std 9005-E02 (R&O Oils); ANSI/AGMA Std 9005-E02 (EP Oils); ASTM D 4304, Type I; ASTM D 4304, Type II; ASTM D 4304, Type III; British Standard, BS 489; DIN 51515 Part I, DIN 51515 Part II; GEK 101941; GEK 28143; GEK 32568F; GEK 46506E; Siemens TLV 9013 04; Siemens TLV 9013 05 (non-EP); Solar ES9-224W	
1.41	5	3	5	0.03	0.01	1.34	Alstom HTGD 90117 V0001 AB (non-EP); DIN 51515 Part I, DIN 51515 Part II; GEK 28143A; GEK 32568G; GEK 46506D; Siemens TLV 9013 04; Siemens TLV 9013 05 (non-EP); Solar ES9-224W MP MS04-MA-CL005 (Rev.3)*	
0.80	10	10	10	20.8	0.4	5.2	Brugger Weingarten requirements; Busak & Shamban micro scratching test industrial gear oil; Cincinnati machine P34/35/59/63/74/76/77/78, ANSI/AGMA 9005-D94 (EP Grades), DIN 51517 Part 3SEB specifications (SEB = Stahl-Eisen-Blatt – German Steel Industry)	
0.5–1	1	0.5	1	7.5	2.3	2.3	VDL ISO VG 100 according to DIN 51 506	

Features and benefits

Hydraulic fluid packages
Our IRGAPAC® H hydraulic oil packages are formulated with ashless additives to reduce concerns when machinery is operating in environmentally sensitive applications. They offer robust protection against wear, corrosion, and oxidation and are formulated with premium antioxidants to reduce sludge and increase the lifetime of the lubricant.
Turbine and circulating oil packages
Our IRGAPAC® T circulating oil and turbine packages are formulated with premium antioxidants to reduce sludge and varnish while at the same time increasing the life of the lubricant. They offer comprehensive protection against corrosion, foaming, and water entrainment.
Compressor and gear packages
Our IRGAPAC® G gear package is formulated to offer superior protection against oxidation and wear. It also offers excellent protection against rust and corrosion while providing exceptional surface properties such as air release, foam, and demulsibility.
Our IRGANOX® compressor package is a mixture of premium IRGANOX® antioxidants and IRGALUBE® ashless antiwear additives. It offers great thermal and oxidation stability together with excellent antiwear properties.