### **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

## Polyisobutene

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

**Industrial Additive Packages** 

**Lubricant Additives** 

Viscosity Index Improvers

Anti-wear / Extreme Pressure Additives

Components for Metalworking Fluids

Pour Point DepressantsFriction Modifiers

Corrosion Inhibitors

Metal Deactivators

Antioxidants

- Hydraulic Packages
- Turbine Packages
- Gear Packages

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.

PAG base stocks are used in many lubricant applications including gear oils, fire-resistant hydraulic fluids, compressor oils, quenchants, metalworking fluids, chain oils and food grade lubricants. Their high thermal and oxidative stability, excellent lubricity, high film strength, load capacity, anti-wear properties, micropitting resistance, and shear stability make them an ideal choice as base stock for formulating high-performance industrial lubricants.

# BREOX® BMBcert™ series

### Performance highlights

- 100% sustainably sourced renewable feedstocks
- Reduces greenhouse gas emissions by up to 80%
- REDcert² certificate for high credibility (TÜV Nord)
- High quality identical and proven performance
- No labeling required



















Our PAG base stocks keep industrial applications moving



Get in contact with us

### Asia

BASF (China) Company Ltd. Fuel and Lubricant Solutions No 300, Jiangxinsha Road, Pudong, Shanghai 200137, China

### Europe

BASF SE
Fuel and Lubricant Solutions
Carl-Bosch-Str. 38
67056 Ludwigshafen, Germany

### North America

BASF Corporation Fuel and Lubricant Solutions 100 Park Avenue, Florham Park, NJ 07932, USA

### South America

BASF SA Av. Nações Unidas, 14.171 – 11º andar São Paulo, 04794-000, Brazil

### BASF SE Lubricant Components basf.com/lubricant-components

The descriptions, designs, data and information contained herein are presented in good faith, and are based on BASF's current knowledge and experience. They are provided for guidance only, and do not constitute the agreed contractual quality of the product or a part of BASF's terms and conditions of sale. Because many factors may affect processing or application/use of the product, BASF recommends that the reader carry out its own investigations and tests to determine the suitability of a product for its particular purpose prior to use. It is the responsibility of the recipient of product to ensure that any proprietary rights and existing laws and legislation are observed. No warranties of any kind, either expressed or implied, including, but not limited to, warranties of merchantability or fitness for a particular purpose, are made regarding products described or designs, data or information set forth herein, or that the products, descriptions, designs, data or information may be used without infringing the intellectual property rights of others. Any descriptions, designs, data and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or ilability for the descriptions, designs, data or information given or results obtained, all such being given and accepted at the reader's risk.

09/2023

2212-EVJ ® = reg. trademark of BASF SE



# Polyalkylene Glycols

Selection Guide



## Polyalkylene glycols (PAGs)

**Description** 

EO/PO random co-polymer

PO homo-polymer

EO/PO random co-polymer

EO/PO random co-polymer

60 % Breox® 75 W 55000 + 40 % water

70 % Breox® 75 W 18000 + 30 % water

60 % Breox® 75 W 18000 + 40% water

Fire-resistant hydraulic fluid concentrate (HFC)

70-80% EO/PO random co-polymer (viscosity ~66,000 mm²/s at 40°C) + 20-30% water

Product name

Water-soluble PAGs

Breox® 50 A 20

Breox® 50 A 50

Plurasafe® WS 260

Breox® 50 A 100

Breox® 50 A 140

Breox® 50 A 150

Breox® 60 D 220

Breox® 75 W 270

Breox® 60 D 320

Breox® 60 D 460

Breox® 50 A 1050

Breox® 60 D 1100

Breox® B 25

Breox® B 35

Plurasafe® WI 165

Plurasafe® WI 250

Plurasafe® WI 285

Plurasafe® WI 385

Plurasafe® WI 600 D

Breox® B 55

Breox® B 75

Breox® B 125

Breox® B 225

Breox® B 335

Plurasafe® WI 625

Plurasafe® WI 700 D

Breox® 75 W 18000

Breox® 75 W 55000

Breox® TB 120

Breox® TB 150

Breox® TB 195

Pluracol® V 1075

Plurasafe® Concentrate 1225

Thickener product range

Thickener-water-blends - For ease of handling

Fire resistant hydraulic fluids concentrate (HFC type)

Breox® 45 A 220 Plus

Breox® 60 D 220 BMBcertTT

Breox® 60 D 460 BMBcert™

Breox® 60 D 1100 BMBcert™

Water-insoluble PAGs

Plurasafe® WS 660

### Main applications

### Chemical properties\*

IVI a	in a	ppı	ica	tior	ıs								Cnemi	Chemical properties"												<b>V</b>
Industrial Metalworking											worki	ng	Kinematic viscosity		Viscosity index	Density	Cloud point	Flash point	Pour point							
Industrial gear oils	lic fluids	ıts		ıts		Textile lubricants	Food grade lubricants	n engine		Aluminum processing	Quenching		mm²/ [40°C	s ;]	mm²/s [100°C]		g/cm³ 20°C	°C	°C	°C	-		otprint)			
	Fire-resistant hydraulic fluids	Marine EAL lubricants	Chain lubricants	Compressor lubricants	High-temp lubricants			Hydrogen combustion engine	Removal fluids			Mill and calendar	ASTM D445/ DIN 51562		ASTM D2270/ DIN ISO 2909	DIN 51757	DIN EN 1890 [Method A]	ASTM D92 / DIN EN ISO 2592	ASTM D97/ DIN ISO 3016	Biodegradability** [≥ 60 % OECD 301B]	Renewability in %	Low PCF offering (Product Carbon Footprint)	NSF HX-1***	LuSC listing***		
_	•	•				•		•	•	•			19		4.6	165	1.02	> 90	183	-58	•	_				V
•	•	•				•		•	•	•			52		11	212	1.03	66	220	-53	•	_			•	H
•	•	•				•		•	•	•			53		> 12	212	1.04	66	227	-48	•	_				1   :
•				•		•		•					102		20	217	1.04	55	240	-48	n/a	_		•		
•	•	•	•	•	•	•		•	•	•		•	130		26	233	1.05	55	257	-45	•	-		•		1   :
•	•	•	•	•		•		•	•	•			140		26	230	1.05	57	240	-48	•	-			•	
•	•	•	•	•		•		•	•	•			150		29	234	1.05	52	256	- 45	•	-		•	•	
•	•	•	•	•		•		•	•	•			218		40	239	1.04	n/a	244	-45	•	-				
•	•	•	•	•		•		•	•	•			220		35	225	1.07	81	240	-45	•	-		•	•	
•	•	•	•	•		•		•	•	•			220		35	225	1.07	81	240	-45	•	100	•	•	•	
		•		•					•	•			270		41	207	1.10	> 90	250	-1	•	_		•		
•		•							•	•			320		60	245	1.07	77	240	-40	•	-		•	•	
•		•					•		•	•			452		77	252	1.07	74	245	-39	•	_		•	•	
•		•					•		•	•			452		77	252	1.07	74	245	-39	•	100	•	•	•	
•				•		•							972		166	290	1.05	50	237	-37	n/a	-				
•		•	•				•		•	•			1,100	)	187	290	1.07	72	243	-33	•	-		•	•	
•		•					•		•	•			1,100	)	187	290	1.07	72	243	-33	•	100	•	•	•	
																			_							١
•	•	•		•									23		5.2	145	0.98	-	220	-50	•	-				, i
•	•	•		•									33		6.7	169	0.98	-	208	-60	•	-			•	4   :
•	•	•		•	•							•	34		7	177	0.98	-	218	-51	•	-				
•	•	•		•	•							•	49		9	176	0.99	-	205	-51	•	-				4   :
•	•	•		•	•							•	55		10	182	0.99	-	232	-45	•	-				
•	•	•		•									56		11	184	0.99	-	210	-57	•	-				4   3
•	•	•		•									76		14	190	0.99	_	211	-52	•	-		•	•	
•	•	•			•							•	76		14	194	0.99	-	231	-48	•	-		•		
•	•	•		•	•		_					•	102		16	176	1.00	-	229	-33	•	-		_		
•	•	•		•			•			•			122		21	200	1.00	-	215	-42 42	•	-		•		
•	•	•		•	•							•	126 147		23	204 188	1.00	-	232	- 42 - 45	•	_		•		
		•			•		•		•	•		•	224		37	214	1.00	_	245	-45 -37	•	_		•		
•			•				•			•			330		52	222	1.00	_	219	-37 -37		_		•		
										-			- 330		OL.		1.00		213	01						1
	•		•		•	•			•			•	18,000	D	2,540	414	1.10	> 90	245	6		_		•		
	•		•		•				•			•	55,000		7,900	430	1.10	> 90	240	6		_		•	•	l P
																										1   :
	•										•		2,600	)	_	_	1.09	78	_	-31		_		•		1
	•		•		•	•			•			•	2,850		-	_	1.09	76	-	-27		_		•		
	•		•		•	•			•		•	•	1,410	)	-	-	1.09	77	-	-33		-		•		1   :
	•		•		•	•			•		•	•	11,01	5	-	-	1.10	76	-	-12		-				
																										F



### Water-soluble PAGs

### Key performance benefits

- Water solubility
- Very low coefficient of friction
- Excellent anti-wear properties
- Micro pitting resistance
- Very good film strength and load-carrying capacity
- Do not form sludges, varnish or gums High viscosity index (VI)
- Low toxicity and readily biodegradable grades
- Seleted products suitable for use in H1 lubricants (incidental food contact)
- Selected products suitable for use in VGP and Ecolabel compliant lubricants
- BMBcert<sup>TM</sup> products based on 100 % renewable feedstocks and offering significantly reduced CO, footprint

### Water-insoluble PAGs

- Water insolubility for water-free environment as they can demulsify from water
- Excellent film strength, anti-wear performance and load-carrying capacity
- Inherent sludge solubility and water tolerance for clean operations
- Very low coefficient of friction
- Very good shear stability
- High viscosity index (VI)
- Selected products suitable for use in H1 lubricants (incidental food contact)
- Selected products suitable for use in VGP and ecolabel compliant lubricants

### Thickener product range

### Key performance benefits

- Broad viscosity and technology range
- Thermal and shear stable
- Excellent thickening efficiency
- Water solubility
- No fumes
- Minimal need to clean after treatment
- Flexible cooling curve by adjustment concentration
- Suitable for formulation of fire resistant hydraulic fluids (HFCs) Various water dilutions for easy handling available

### Fire resistant hydraulic fluids concentrate (HFC type)

Concentrate allowing customers to formulate ready-to-use fire resistant hydraulic fluid (HFC type)

3,439

1,080