

PETRONAS HYDRAULIC SERIES

High Performance Anti-wear Hydraulic Fluids

PETRONAS Hydraulic Series are high performance anti-wear hydraulic fluids specially developed for a wide range of mobile and industrial hydraulic equipment operating under normal to heavy duty conditions.

Formulated with high quality selected base oils enhanced with advanced anti-wear, anti-oxidant, anti-rust and anti-foam additives, PETRONAS Hydraulic fluids provide high anti-wear protection, smooth operation of the hydraulic system and over 3x longer lasting performance*.

PETRONAS Hydraulic Series meet or exceed key industrial specifications and OEM requirements.

*vs. minimum requirements of ISO 11158 HM for anti-wear hydraulic fluids based on TOST (ASTM D943)

Applications

PETRONAS Hydraulic Series are recommended for use in:

- various mobile hydraulic and industrial hydraulic systems operating under normal to heavy duty conditions
- hydraulic systems demanding high quality anti-wear fluids

Conditionally they may also be used in circulation, splash, bath and ring oiling systems feeding lubricant to gears and bearings. However please consult our local Technical Service Team and/or OEM manual before application.

For applications where premium performance anti-wear hydraulic fluids are required, PETRONAS Hydraulic PLUS Series is recommended.

PETRONAS HYDRAULIC SERIES

High Performance Anti-wear Hydraulic Fluids

Features and Benefits

Features	Benefits
Low temperature protection	Ensures proper protection of equipment components during cold starts
High anti-wear protection	Protects equipment components from excessive wear and provides long equipment life
High wet and dry filterability	Maintains high filter efficiency without giving rise to undue pressure drop, thus increasing filter lifetime
High thermal and oxidation stability	Maintains performance levels under high temperatures and pressure, enabling long oil drain intervals
High rust & corrosion protection	Inhibits the corrosion process that occurs in presence of water, improving equipment life
High water separability	Due to high water separability the system is protected from water degenerative effects, maintaining hydraulic system efficiency at required level and reducing maintenance costs
High air release and foam stability	Maintains high efficiency in hydraulic systems, ensures smooth operation due to fast air release. Protects the system from air degenerative effects reducing maintenance costs
High multi metal compatibility	Compatible with most metal alloys ensuring trouble free performance of the system
High compatibility with most seal and elastomers	Compatible with most seals and elastomers, which prevents oil leaks and contamination due to seal erosion

PETRONAS HYDRAULIC SERIES

High Performance Anti-wear Hydraulic Fluids

Typical Properties

Characteristic	Method	Specification	32	46	68	100
Specific Gravity @15°C	ASTM D 4052	(1)	0,871	0,877	0,883	0,886
Kinematic Viscosity at 40°C, cSt	ASTM D 445	±10%	32	46	68	100
Kinematic Viscosity at 100°C, cSt	ASTM D 445	**	5,4	6,8	8,7	11,2
Viscosity Index	ASTM D 2270	(1)	102	102	99	97
Flash Point, °C	ASTM D 92	Report	220	220	230	240
Pour Point, °C	ASTM D 97	**	-33	-33	-30	-27
TAN, mgKOH/g	ASTM D 664	(1)	0,60	0,60	0,60	0,60
FZG, Stages Passed	ISO 14635-1	Min. 10	12	12	12	12
Water Separability, 40/37/3 - mins	ASTM D 1401	**	15	15	15	30
Copper Strip Corrosion	ASTM D 130	Max. 2	1b	1b	1b	1b
TOST life, hours	ASTM D 943	Min. 1000	3500	3500	3500	3500
Foam Sequence I, mL	ASTM D 892	Max. 150/0	0/0	0/0	0/0	0/0
Foam Sequence II, mL		Max. 75/0	0/0	0/0	0/0	0/0
Foam Sequence III, mL		Max. 150/0	0/0	0/0	0/0	0/0
Characteristic	Method	Specification	10W			
Specific Gravity @15°C	ASTM D 4052	(1)	0,858			
Kinematic Viscosity at 40°C, cSt	ASTM D 445	±10%	34			
Kinematic Viscosity at 100°C, cSt	ASTM D 445	**	5.7			
Viscosity Index	ASTM D 2270	(1)	106			
Flash Point, °C	ASTM D 92	Report	226			
Pour Point, °C	ASTM D 97	**	-33			
TAN, mgKOH/g	ASTM D 664	(1)	0,60			
FZG, Stages Passed	ISO 14635-1	Min. 10	12			
Water Separability, 40/37/3 - mins	ASTM D 1401	**	30			
Copper Strip Corrosion	ASTM D 130	Max. 2	1b			
TOST life, hours	ASTM D 943	Min. 1000	3500			
Foam Sequence I, mL	ASTM D 892	Max. 150/0	0/0			
Foam Sequence II, mL		Max. 75/0	0/0			
Foam Sequence III, mL		Max. 150/0	0/0			

All technical data is provided for reference only and all specification based on DIN 51524-2 (2006) and ISO 11158 HM (FDIS 2008)

**Individual limits accordingly with each viscosity grade / (1): not required in specification / SS is available upon request including quality control limits

www.pli-petronas.com

PETRONAS HYDRAULIC SERIES

High Performance Anti-wear Hydraulic Fluids

Performance Levels

- ASTM D 6158 HM (2005)
- Bosch Rexroth RD90220
- DIN 51524 Part II HLP (2006)
- Eaton 03-401-2010
- Fives Cincinnati P-68/P-69/P-70
- GM LS-2 (2004)
- ISO 11158 HM (FDIS 2008)
- JCMAS HK P041 (2004)
- Parker Denison HF-0 / HF-1 / HF-2
- SAE MS1004
- SEB 181 222 (2007)
- US Steel 126, 127 and 136

Health, Safety and Environment

This product is unlikely to present any significant health and safety hazards when used in the recommended application. Avoid contact with skin. Wash immediately with soap and water after skin contact. Do not discharge into drains, soil or water.

For further detail regarding storage, safe handling, and disposal of product, please refers to product SDS or contact us at: www.pli-petronas.com

Important Note

The word PETRONAS, the PETRONAS logo and such other related trademarks and/or marks used herein are trademarks or registered trademarks of PETRONAS Lubricants International Sdn. Bhd. ("PLISB"), or its subsidiaries or related Holding Corporation under license unless indicated otherwise. The PLI Documents and the information contains herein is believed to be accurate as of the date of printing. PLISB makes no express or implied representation or warranties as to its accuracy or completeness or information in or any transaction performed. The PLI Documents information provided is based on standard tests under laboratory conditions and is given only as a guide. Users are advised to ensure that they refer to the latest version of these PLI Documents. It is the responsibility of the users to evaluate and use products safely, to assess suitability for the intended application and to comply with all applicable laws and regulations imposed by the respective local authorities.

Safety Data Sheets are available for all our products and should be only be consulted for appropriate information regarding storage, safe handling and disposal of the product. No responsibility shall be taken by either PLISB or its subsidiaries and related holding corporation for any loss or injury or any direct, indirect, special, exemplary, consequential damages or any damages whatsoever, whether in action of contract, negligence or other tortuous action, in connection or resulting from abnormal use of the materials and/or information, from any failure to adhere to recommendations, or from hazards inherent in the nature of the materials and/or information. All products, services and information supplied are under our standard conditions of sale. Please consult with any of our local representative in the event you require any further information.