

# PETRONAS CIRCULA SERIES

## High Performance Anti-wear Circulating Oil

PETRONAS Circula Series are high anti-wear circulating oils specially developed for a wide range of heavy duty circulating systems.

Formulated with high quality selected mineral base oils enhanced with advanced anti-wear, anti-oxidant, anti-rust and anti-foam additives, PETRONAS Circula oils provide very good anti-wear, rust and corrosion protection, smooth operation of the circulating system and up to 2x longer lasting performance\*.

\*vs. minimum requirements of ISO 11158 HM fluids based on TOST (ASTM D943)

### Applications

PETRONAS Circula Series are recommended for use in:

- various heavy duty circulating systems requiring high anti-wear properties
- circulating systems including plain or rolling-element bearings and hydraulics
- spur and helical gear drives where no EP performance is required

### Features & Benefits

Features	Benefits
Very good anti-wear protection	Protects equipment components from excessive wear and provides long equipment life
High oxidation stability	Maintains performance levels under regular temperatures and pressure
Very good rust & corrosion protection	Inhibits the corrosion process that occurs in presence of water, improving equipment life
Very good water separability	Due to water separability the system is protected from water degenerative effects, maintaining circulating system efficiency at required level and reducing maintenance costs
Very good multi metal compatibility	Compatible with most metal alloys ensuring trouble free performance of the system
Very good compatibility with most seal and elastomers	Compatible with most seals and elastomers, which prevents oil leaks and contamination due to seal erosion

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### Typical Properties

Characteristic	Method	Specification	150	220	320	460
Specific Gravity @15°C	ASTM D 4052	(1)	0,880	0,898	0,915	0,928
Kinematic Viscosity at 40°C, cSt	ASTM D 445	±10%	150	220	320	460
Kinematic Viscosity at 100°C, cSt	ASTM D 445	**	14,5	19,0	24,8	31,3
Viscosity Index	ASTM D 2270	(1)	95	97	99	98
Flash Point, °C	ASTM D 92	Report	240	240	240	240
Pour Point, °C	ASTM D 97	**	-21	-21	-18	-18
TAN, mgKOH/g	ASTM D 664	(1)	0,33	0,33	0,33	0,33
Water Separability, 40/37/3 - mins	ASTM D 1401	**	20	20	20	20
Copper Strip Corrosion	ASTM D 130	Max. 2	1b	1b	1b	1b
TOST life, hours	ASTM D 943	Min. 1000	2000	2000	2000	2000
Foam Sequence I, mL	ASTM D 892	Max. 150/0	30/0	30/0	30/0	30/0
Foam Sequence II, mL		Max. 75/0	10/0	10/0	10/0	10/0
Foam Sequence III, mL		Max. 150/0	30/0	30/0	30/0	30/0

All technical data is provided for reference only and all specification based on ISO 11158 HM

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

### Performance Levels

- DIN 51524 Part II HLP (2006)
- ISO 11158 HM (FDIS 2008)

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### 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 refer to product SDS or contact us at: [www.pli-petronas.com](http://www.pli-petronas.com)

### Important Note

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