MAK HYDROL P

Heavy duty hydraulic fluids for off-highway equipment

MAK Hydrol P are high performance anti-wear type hydraulic oils. They are blended from high quality high viscosity index base oils and fortified with extremely shear stable viscosity index improvers. These oils are developed with premium quality oxidation inhibitor and anti-rust additives to provide long trouble-free service. Exceptionally high viscosity index of these oils ensures smoother operation of hydraulic transmission systems even under extreme ambient temperature conditions. Very low pour point of these oils enable them to perform extremely well even in severely cold climatic conditions. Outstanding oxidation and thermal stability offers long oil life, a high degree of protection and minimised deposit formation. They are formulated for excellent water separation, anti-foam characteristics and cleanliness and allow efficient operation of the system. Superior moisture handling capability ensures longer life and reduces the risk of rusting and corrosion. MAK Hydrol P oils are compatible with seal materials and paints normally specified for use in hydraulic systems with mineral oils.

Grades: MAK Hydrol P range is available in the following ISO VG grades – **46, 68** and **100.**

Applications:
MAK Hydrol P range is specially recommended for all modern hydraulic systems subjected to wide variations in operating temperatures as in earth moving equipment, mining and industrial applications which can tolerate only small variations in viscosity with fluctuating temperatures. MAK HYDROL P 46 is recommended for Tata Hitachi Excavators. MAK HYDROL P 68 is recommended for use in small L&T – Komatsu excavators while MAK HYDROL P 100 is recommended for large L&T Poclain excavators.

Performance/ Benefits:
Excellent Wear Protection – excellent protection to the pump, valve and other system components by the anti-wear additive.

Outstanding Oxidation Stability – outstanding resistance to the effects of oxidising agents. Resists sludge and deposit formation. Minimises filter choking and valve sticking. Ensures longer operating life, less maintenance and reduction in operating cost.

Superior VI Improver – extremely shear stable VI improver allows minor variation in viscosity index even in wide fluctuations in operating as well as ambient temperatures.

Good Thermal Stability – provides good resistance to thermal break down and capability to work under varied ambient and operating temperatures to offer optimum life and performance.

Resistance to Foaming – allows precision control, high pump pressures and efficient power transfer.

Excellent Demulsibility – the rate of water separation from oil is very high. Increases protection system efficiency and reliability.

Excellent Low Temperature Flowability – very low pour points offered by the oil helps in maintaining excellent fluidity and efficient lubrication and protection in low temperature conditions.

Increased System Efficiency – by resisting thermal and chemical break down, maintaining filterability, cleanliness, excellent water separation and anti-foam characteristics of the oil these oil help to maintain system efficiency and reliability.

Specification:
- MAK Hydrol P 46 – Proprietary Grade
- MAK Hydrol P 68 – L&T – (R-201-032-11) Index A specification
- MAK Hydrol P 100 – L&T – (Z-00-032-42) Index G specification

Approvals:
- MAK Hydrol P 46 – M/s. TELCO for TATA Hitachi Excavators
- MAK Hydrol P 100 – M/s. Hyderabad Industries Ltd. for Demag Excavators

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Product and Application Development Deptt.
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Storage & Handling:
The product should be stored inside. Keep it properly sealed to avoid contamination. Avoid freezing. Shelf life is 3 yrs. under protected storage conditions.

Health & Safety:
They are unlikely to be hazardous when properly used in recommended applications. Contamination of the oil from other oils, greases, chemicals, dirty water etc. can occur during the use. It should be avoided. Regular monitoring of the in-use product is recommended.

Typical Physico-Chemical Data: MAK Hydrol P

Characteristics	Method	46	68	100
Appearance	Visual	Clear & Bright	Clear & Bright	Clear & Bright
Density, g/cc @15^{O}C	ASTM D1298	0.8759	0.8805	0.892
Kinematic Viscosity @40^{O}C, cSt	ASTM D445	43.28	66.03	106.92
Kinematic Viscosity @100^{O}C, cSt	ASTM D445	7.59	10.37	13.56
Viscosity Index	ASTM D2270	145	144	125
Flash Point, COC, ^{O}C	ASTM D92	210	226	240
Pour Point, ^{O}C	ASTM D97	-39	-36	-30
Copper Corrosion, 100^{O}C, 3 hrs.	ASTM D130	1b	1b	1b
Foaming Characteristics/ Stability (ml) Sequence I , II, & III	ASTM D892	Nil	Nil	Nil
Demulsibility (ml-mins)	ASTM D1401	40-40-0(15)	40-40-0(15)	40-40-0(20)
FZG Rating, FLS	ASTM D5182	11	11	11

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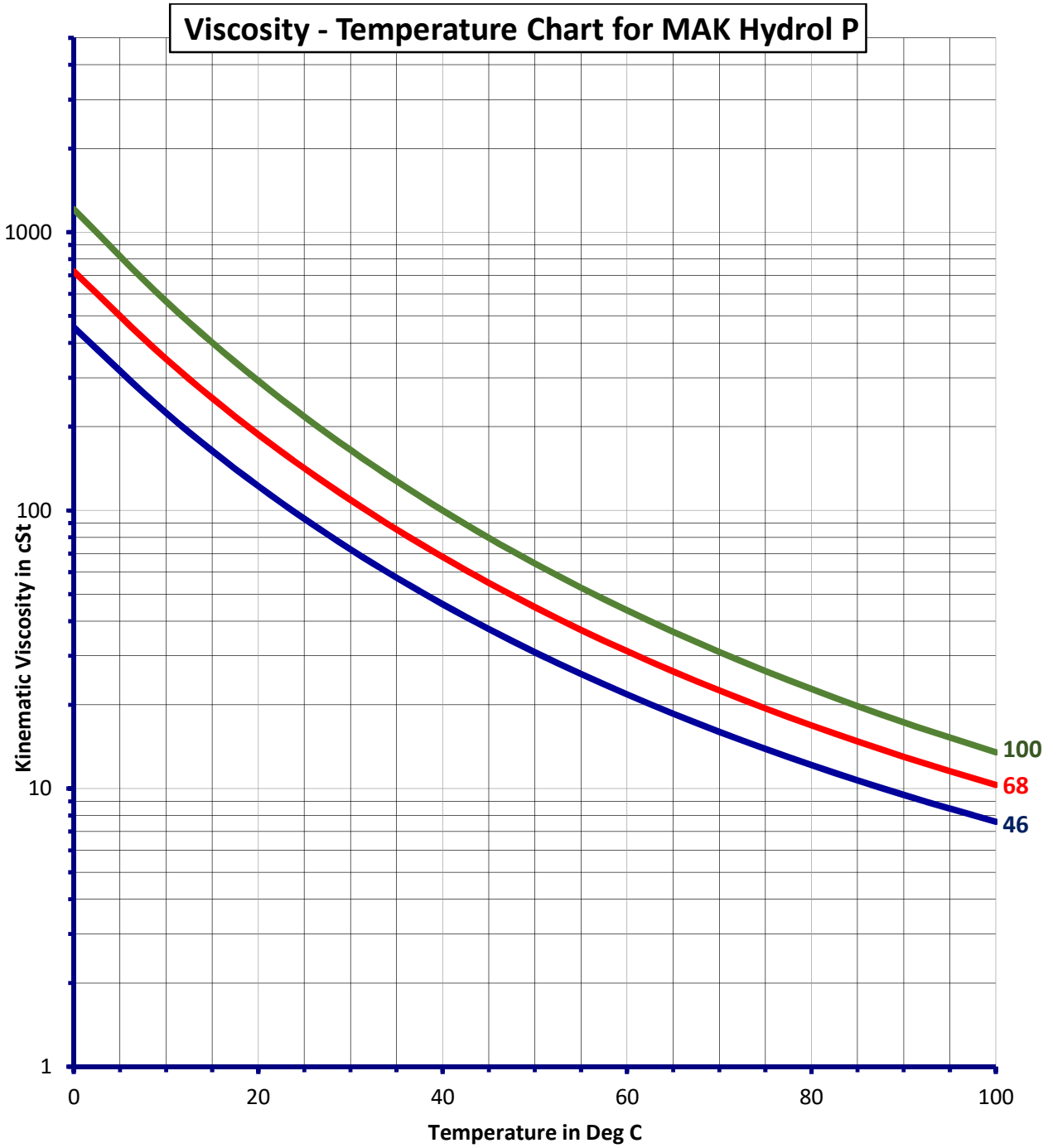

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