

# MAK HYDROL CE

Premium ashless hydraulic fluid for long life and improved efficiency

MAK Hydrol CE oils are high performance premium quality hydraulic oils blended from highly refined, high viscosity index Group II plus base stocks with carefully selected ashless (Zinc-free) antiwear additive. These oils are designed to operate over a wide range of working conditions including wide load fluctuation. They possess high FZG rating and provide outstanding protection and performance. 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, exceptional hydrolytic stability, 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 CE oils are compatible with seal materials and paints normally specified for use in hydraulic systems with mineral oils.

**Grades:** MAK Hydrol CE range is available in the following ISO VG grades – **46** and **68**

#### Applications:

MAK Hydrol CE range is recommended for high pressure hydraulic power systems and a wide variety of circulation systems of industrial and automotive equipment working in exposed environment. They are suitable for precision hydraulic systems requiring very high control of fluid viscosity like high performance electro-hydraulic or numerically controlled systems particularly where close clearance servo-valves are used. They are used in general manufacturing, power and metal equipment operating at high speeds, loads and temperatures. MAK Hydrol CE oils are recommended for the lubrication of gear, vane and piston pumps. These oils are suitable for marine applications also but they should not be mixed with hydraulic oils with Zinc additive.

#### Performance/ Benefits:

**Excellent Wear Protection** – excellent protection to the pump, valve and other system components by the advanced zinc-free additive. EP property helps to operate on a wide range of load conditions – moderate to severe.

**Outstanding Oxidation Stability** – designed for a minimum 5000 hrs. TOST life as per ASTM D 943. Outstanding resistance to the effects of oxidising agents. Resists sludge and deposit formation. Minimises filter choking. Ensures longer operating life, less maintenance and reduction in operating cost.

**Superior Hydrolytic Stability** – resists water absorption and the chemical decomposition of the oil in the presence of water. Protects from acid corrosion, rusting and allows longer oil life.

**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.

**Long Fluid Life** – offers improved capability to extend fluid maintenance period and hence reduces equipment downtime.

**Rapid Air Release and Resistance to Foaming** – ensures release of entrapped air from oil and resists foaming to offer superior performance of the precision control mechanism in the system.

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

**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:

- 12<sup>th</sup> PASS FZG-Niemann EP Test
- IS 11656:1986 (Reaffirmed 2013)
- Denison HF-0 and HF-2
- Eaton Vickers I-286-S
- IS 10522:1983 (Reaffirmed 2014)
- AIST 127
- Cincinnati Milacron P-69, P-70
- DIN 51524 Part 2 HLP type

**Approvals:**

MAK Hydrol CE 68 is approved by

- M/s. Putzmeister Concrete Machines (P) Ltd
- M/s. Schewing Stetter

**Storage & Handling:**

The product should be stored inside. Keep it properly sealed to avoid contamination. Avoid freezing. Shelf life is 5 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 CE**

Characteristics	Method	46	68
Appearance	Visual	Clear & Bright	Clear & Bright
Density, g/cc @15°C	ASTM D1298	0.8561	0.861
Kinematic Viscosity @40°C, cSt	ASTM D445	46.1	68.3
Kinematic Viscosity @100°C, cSt	ASTM D445	7.17	9.39
Viscosity Index	ASTM D2270	115	115
Flash Point, COC, °C	ASTM D92	238	244
Pour Point, °C	ASTM D97	-18	-24
Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1b	1b
Foaming Characteristics, ml	ASTM D892		
Sequence I		10/0	10/0
Sequence II		10/0	10/0
Sequence III		10/0	10/0
Demulsibility @ 54°C (ml-mins)	ASTM D1401	40-40-0(15)	40-40-0(15)
FZG Rating, PASS	ASTM D5182	12	12
Air Release Value, mins	ASTM D3427	4.5	6.5



Viscosity - Temperature Chart for MAK Hydrol CE

