



MAK FREEZOL

Superior quality high performance refrigerator compressor oils

MAK Freezol range of oils are blended using highly refined, specially treated straight mineral naphthenic oils designed for very low temperature applications. They have low pour points and excellent fluidity at very low temperatures by virtue of being almost wax-free. Special additives minimise the system deposits and offer long service life. These oils have good chemical stability and rapid solubility in liquefied refrigerants. They ensure high condenser efficiency and reduced compressor valve maintenance due to less amount of deposit formation.

Grades: MAK Freezol range is available in the following ISO VG grades – **15, 32, 46, 68** and **100** Non-ISO VG grade – **12** and **57**.

Applications:

MAK Freezol range is recommended for cylinder and bearing lubrication of a wide range of domestic and industrial refrigeration and air conditioning compressors. They can be used in both reciprocating and rotary compressors using either ammonia or conventional CFCs or HCFCs refrigerants. They are used in the lubrication of all types of refrigeration compressors operating at moderate evaporator temperatures (av. -30°C depending upon grades) and thermal loads. They can be used in open, hermetically sealed or semi-sealed industrial type Compressors. MAK Freezol can also be used for general lubrication of other machineries operating at sub-zero temperatures.

Performance/ Benefits:

High Quality Base Oil – superior quality Naphthenic base oils offer excellent low temperature properties and excellent

heat transfer even at low temperatures.

Low Wax Content – low wax forming tendency ensures efficient evaporator operation and low temperature fluidity.

Excellent Chemical Stability – possesses excellent high temperature and oxidation stability even at high compressor discharge temperatures. Superior control of sludge and deposit control ensure longer service life.

Good Lubrication Property – prevents system wear. Offers protection and maintains system reliability.

Specification:

- IS 4578:1997 (Reaffirmed 2009)

Approval:

MAK Freezol 32 is approved by M/s. Godrej & Boyce and M/s. Carrier Aircon Ltd. for their compressors

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 Freezol

Characteristics	Method	12	15	32	46	57	68	100
Appearance	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Density, g/cc @15°C	ASTM D1298	0.8771	0.8847	0.8851	0.8894	0.8881	0.8959	0.8970
Pour Point, °C	ASTM D97	-48	-48	-39	-33	-30	-27	-27
Flash Point, COC, °C	ASTM D92	152	167	188	196	200	210	244
Kinematic Viscosity @40°C, cSt	ASTM D445	12.9	15.13	32.8	46.6	57.3	68.5	100.2
Kinematic Viscosity @100°C, cSt	ASTM D445	2.87	3.18	4.95	5.10	5.72	7.50	9.52
Viscosity Index	ASTM D2270	50	52	54	56	57	58	61
Total Acid Number, mg KOH/g	ASTM D 974	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1a	1a	1a	1a	1a	1a	1a