



MAK THERMOL PLUS 32

Superior accelerated heat treatment oil for outstanding performance

MAK Thermol Plus 32 is a superior quality quenching oil formulated from highly refined base stocks and specially selected additives. The additive system provides excellent resistance to oxidative and thermal degradation of the oil and offers longer service life. This oil has very high flash point and low volatility. The accelerated quenching oil allows uniform hardening of parts with improved grain structure and with minimum distortion. It provides consistent and repeatable mechanical and metallurgical properties.

Applications:

MAK Thermol Plus 32 is an accelerated variety of quenching oil. It is suitable for applications where fast quenching is required and also for parts subject to distortion during heat treatment. MAK Thermol Plus 32 oil is suitable for applications like open tanks, continuous furnaces, batch furnaces and vacuum furnaces. It is recommended for hardening of ferrous metals like carbon steel, grey iron and high-alloy steel. It is generally used in quenching of crank shafts, gear parts, automotive leaf springs, high-speed tools, nut, bolts bright bars and industrial components.

Performance/ Benefits:

Excellent Thermal Stability – provides resistance to break down and deposit formation for optimum life and performance.

Low Volatility – reduces fume generation, decomposition of product and oil consumption. Provides conducive working environment.

Excellent Oxidation Resistance – Outstanding resistance to sludge and deposit formation. Keeps the work piece clean. Longer operating life and lower operating cost.

High Flash Point – limits the risk of fire and offers safe working environment.

Good Rust Protection – Offers superior protection for work pieces.

Excellent Thermal Conductivity – wettability additive improves the rate of heat transfer. Maintains quenching speed and allows uniform hardening.

Consistent Performance – offers uniform hardening with minimum distortion that allows consistent mechanical and metallurgical properties

Non-Corrosive – no corrosion of the work pieces, maintains metallurgy and dimensional uniformity.

Non-Toxic – Provides safe working environment to the operators.

Specification:

- IS 2664:1980 (Reaffirmed 2014) for the respective viscosity grades

Typical Physico-Chemical Data: MAK Thermol Plus 32

| Characteristics | Method | 32 |
|---------------------------------|------------|-------------|
| Colour | Visual | Light Brown |
| Appearance | Visual | Clear |
| Density, g/cc @15°C | ASTM D1298 | 0.8822 |
| Copper Corrosion, 100°C, 3 hrs. | ASTM D130 | 1b |
| Flash Point, COC, °C | ASTM D92 | 210 |
| Kinematic Viscosity @40°C, cSt | ASTM D445 | 31.2 |
| Kinematic Viscosity @100°C, cSt | ASTM D445 | 5.3 |
| Viscosity Index | ASTM D102 | 101 |
| GM Quench Speed, Sec | ASTM D3520 | 19 |
| Maximum Cooling Rate, °C/S | | 75-80 |

Values for cooling rate is typical for new oil. It will vary for used oil due to oxidation and contamination. Check with the supplier for additional details about quenching performance.

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.