

# MAK THERMOL UF

## Premium ultra-fast accelerated heat treatment oil

MAK Thermol UF is a premium quality ultra-fast quenching oil formulated from highly refined base stocks and highly effective accelerator concentrate. The additive system provides excellent resistance to oxidative and thermal degradation of the oil and offers longer service life along with excellent part. 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 UF is suitable for applications where rapid quenching is required and also for parts subject to distortion during heat treatment. MAK Thermol UF oil is suitable for applications where dimensional stability, component cleanliness and uniform hardness of the parts are important. It can be used in 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:

**Consistent Performance** – Offers uniform hardening with minimum distortion that allows consistent mechanical and metallurgical properties.

**Excellent Oxidation and Thermal Stability** – Provides resistance to break down and deposit formation for optimum life and performance. Offers outstanding resistance to sludge and deposit formation. Keeps the work pieces clean. Longer operating life and lower operating cost.

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

**Reduced Drag Out** – Limits consumption, ensures surface cleanliness and minimises post-treatment costs.

**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 for uniform hardening.

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

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

### Specification:

- Proprietary Grade

### Typical Physico-Chemical Data: MAK Thermol UF

Characteristics	Method	Values
Colour	Visual	Dark
Appearance	Visual	Clear
Density, g/cc @15°C	ASTM D1298	0.858
Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1b
Flash Point, COC, °C	ASTM D92	190
Kinematic Viscosity @40°C, cSt	ASTM D445	18.6
GM Quench Speed, Sec	ASTM D3520	11
Maximum Cooling Rate, °C/S	ASTM D 6200	105-110

*Note : 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.