

# MAK COLD ROLLING OIL

Premium cold rolling oil for ferrous metals

MAK Cold Rolling Oil has been specially designed for cold reduction of steel sheet. It is developed by blending fully synthetic and natural products with advanced emulsifier. Surface finish and roll life depend on the lubrication at the roll and steel sheet interface. The chosen additive ensures optimum reduction of friction at the contact line and offers excellent surface finish. The special additive chemistry helps providing low residue, excellent resistance to oxidation and extended operating life. This oil is based on non-active chemistry.

### Applications:

MAK Cold Rolling Oil is a soluble oil for steel and other ferrous alloys. It is used to effectively reduce different types of steel to the gauge and shape required. It is recommended to use in steel sheet manufacturing for automotive and white goods components.

### Performance/ Benefits:

**Excellent Lubrication property** – maintains strong lubricating film in hydrodynamic and mixed lubrication zones. It exhibits low friction coefficient and good load carrying characteristics in boundary lubrication zones. Low friction reduces the rolling force which helps reducing the elastic flattening of work rolls and enables larger reduction.

**Superior Cooling Characteristics** – modern rolling process demands much smaller exit gauges from larger hot strip thickness. Heat is generated due to friction and deformation in the roll bite. Good cooling characteristics offers efficient control of roll temperature, transverse thermal profile of rolls, strip shape while minimising roll wear and degradation.

**Cleanliness** – has good cleanliness performance to keep the mill housing clean. It does not leave residue on rolls and produces stain free rolled strips with no soot formation on the rolled sheet.

**Emulsion Behaviour** – forms a metastable emulsion with controlled distribution of emulsion particles based on size. It offers optimum balance of lubricity and cooling. Cooling system needs efficient agitation facility to maintain effective emulsion.

**Extended Sump Life** – contains broad spectrum biocide. Inhibits microbial and fungal growth. Offers extended sump life for the emulsion. Reduces operating cost.

**Excellent Corrosion Protection** – selected corrosion inhibition additives in oil helps to protect cold rolled sheets from corrosion for intermediate storage of strips.

**Clean Burn-Off Characteristics** – burning off in annealing process without residue leaves sheets clean for further processing.

**Tramp Oil Rejection** – efficient tramp oil rejection offers clean strips.

### Concentration:

Cold Rolling: 2 – 5%

### Specification:

- Proprietary Grade

### Typical Physico-Chemical Data: MAK Cold Rolling Oil

Characteristics	Method	Value
Appearance	Visual	Clear
Colour	Visual	Brown
Density, g/cc @15°C	ASTM D 1298	0.925
Kinematic Viscosity @40°C, cSt	ASTM D 445	43.22
Kinematic Viscosity @100°C, cSt	ASTM D 445	8.29
Viscosity Index	ASTM D2270	170
Saponification Value, mg KOH/ g	IS 1448 P:35	165
TAN	ASTM D 664	4.2
pH, 4% Emulsion in DM water		7.6

### Storage & Handling:

The product should be stored inside. Keep it properly sealed to avoid contamination. Avoid freezing. Shelf life is 2 yrs. under protected conditions.

### Health & Safety:

It is 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.