

# MAK MULTISYNTH

Premium fully synthetic metalworking fluid for moderate duty machining applications

MAK Multisynth is an advanced fully synthetic premium quality soluble metalworking fluid. It offers optimum cooling and lubricating performance to the machining operations. Extreme pressure additive and lubricity agents can help reduce tool regrinding and component rejects. It forms clear and stable emulsion with soft and hard water (400 ppm) as well. It also has superior tramp oil rejection capability.

### Applications:

MAK Multisynth, a fully synthetic cutting oil is developed for a variety of machining operations like grinding, drilling, turning, milling etc. in automatic lathes, HMCs, VMCs etc. It is suitable for general purpose grinding and light to medium duty machining operations of both ferrous and non-ferrous materials.

Recommended Use	Cast Iron	Alloy Steel	Carbon Steel	Al. Alloy	Yellow Metals
Grinding	√√	√√	√√	√	√√
General Machining	√√	√√	√√	√	√√

√√ Main applications, √ Check with supplier

### Performance/ Benefits:

**Good EP property** – reduces the friction between tool and work piece. It provides good load bearing capability and protection to tools along with superior surface finish.

**High Emulsion Stability** – readily emulsifies to form stable translucent emulsion (oil in water type).

**Excellent Detergency Properties** – prevents residue or scum formation on the machine surfaces and keeps it clean.

**Low Oil Mist Characteristics** – reduces oil consumption and provides good working environment. Extremely fine emulsion reduces carry off and lowers total operating cost.

**Environment Friendly** – formulation is free of chlorine, nitrite, phenol and secondary amines.

**Low Foaming Tendency** – helps maintaining continuous oil film between moving parts. Extends tool life. It provides long term rust protection to the tools and the work pieces.

**Long Sump Life** – inhibits bacterial and fungal growth.

### Concentration:

Grinding:	2 – 5%
General Machining:	5 – 10%
Difficult Operations:	10 – 15%

### Specification:

- Proprietary Grade

### Typical Physico-Chemical Data: MAK Multisynth

Characteristics	Method	Value
Colour, Oil	Visual	Yellow
Appearance, Oil	Visual	Clear
Colour, Emulsion (5%)	Visual	Translucent
Copper Corrosion, 100°C, 3 hrs.	ASTM D130	1a
Emulsion Test, 5:1 & 20:1 ratio in water of 400 ppm hardness (as CaCO <sub>3</sub> )	IS 1448 P:68	No oil, no cream
Frothing Test, 5:1 & 20:1 ratio in water of 200 ppm hardness (as CaCO <sub>3</sub> )	IS 1448 P:99	NIL (no froth) in 30 sec
Corrosion Test, % Break Point	IP 287	3
Cast Iron Corrosion Test 20:1 ratio emulsion with 400 ppm hardness (as CaCO <sub>3</sub> )	IS 1448 Appendix A	0/0-0 (no corrosion) Passes
pH, at 5% in distilled water	--	9.2

### Refractometer Factor:

Emulsion Concentration, %	2	5	7	10
Refractometer Reading	2.0	3.5	4.5	6.2

### Additive:

Ester	Phenol	Amines	Biocides	Chlorine	Fungicides
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### Storage & Handling:

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

### Health & Safety:

It is unlikely to be hazardous when properly used in recommended applications. Contamination of the coolant 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.