



Hi-Tec Oil Traders Pty Ltd ABN 28 053 837 362

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PRODUCT DATA SHEET

SOLUBLE CUTTING FLUID

Hi-Tec SOLUBLE CUTTING FLUID is premium quality Chlorine Free, borate-containing soluble cutting oil. It is designed for light to moderate machining operations including boring, milling, drilling, tapping, threading, broaching, turning, reaming and grinding.

Hi-Tec SOLUBLE CUTTING FLUID forms stable white emulsions with good "emulsion reserve" and possesses excellent resistance to bacteria degradation. The product does not contain any free phenolics or nitrites. The product also offers low foaming tendency solution in its applications.

CHARACTERISTICS

MAXIMISED LUBRICATION & COOLING is assured between the cutting tool and work surfaces using **Hi-Tec SOLUBLE CUTTING FLUID**, which promotes long tool life and excellent surface finish to the machined surfaces.

RUST PROTECTION is given to steel and ferrous machined metals with emulsion dilutions up to 60:1 water to oil concentrations.

BACTERIAL RESISTANCE: The inclusion of an effective biocide in **Hi-Tec SOLUBLE CUTTING FLUID** ensures long emulsion service life, resisting bacteriological degradation which often results in staining and corrosion of the machined components.

LONG TOOL LIFE is aided by the high oiliness, low frictional and good cooling properties of **Hi-Tec SOLUBLE CUTTING FLUID**.

EMULSION STABILITY of **Hi-Tec SOLUBLE CUTTING FLUID** is unsurpassed. It provides excellent emulsion stability in hard water up to 400 ppm calcium carbonate.

RECOMMENDATIONS

Hi-Tec SOLUBLE CUTTING FLUID is recommended at the following dilutions:

| | |
|---------------------------------|--------|
| Turning, Milling and Drilling: | 3 - 5% |
| Threading, Reaming and Tapping: | 4 - 5% |
| Broaching: | 4 - 5% |
| Grinding: | 2.5% |

When making an emulsion, always add oil to water slowly whilst mixing well. Never add water to oil.



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CLASSIFICATION OF WORKPIECE METALS ACCORDING TO THEIR MACHINABILITY

**Easy machining-
High machinability
(machinability >70%)**

Non-ferrous

- Leaded bronzes
- Non leaded brasses
- Zinc base alloys
- Magnesium
- Aluminium
- Aluminium/silicon alloys

**Medium machining-
Medium machinability
(machinability 50 % - 70%)**

Non-ferrous

- High tensile bronzes
- Copper
- Ferrous**
- Cast iron
- Mild, low carbon and unalloyed steels

**Difficult machining-
Low machinability
(machinability <50%)**

Non-ferrous

- Nickel
- Nickel/chrome alloys
- Titanium
- Ferrous**
- High carbon and low-alloyed steels (heat treatable steels, ball bearing steels, construction steels, tool steels, etc.)
- High carbon and high-alloyed steels (stainless steels, high speed steels, heat resistant alloys, etc.)

Hi-Tec SOLUBLE CUTTING FLUID is suitable for FERROUS materials with a machinability of >50% (Medium machinability) and for NON FERROUS materials.

HOW TO ACHIEVE THE OPTIMUM RESULTS

- The emulsion strength should be controlled very carefully.
- As much contamination as possible should be prevented.
- Grinding dirt, chips, and any other contaminants should be removed quickly.

HOW TO EXTEND THE COOLANT LIFE

Filtration of coolants is a must, especially in grinding systems where solid matter is small, and in cast-iron machining where fine debris forms. Filtration will permit consistently better finishes and will also extend the life of the coolant.

Some of the hydraulic equipment on modern automated machines will leak as the equipment wears. Leaking hydraulic oil, or carry-over oil from previous machining, will soil the system. Trapped solid matter plugs filters and causes coagulation of the emulsion. This will make the operation hot and smoky. Centrifuges or skimmers can remove such "tramp oil" before it does much harm.

Because there are many variables in the operating systems, nobody can guarantee how long a coolant or emulsion will last. However, in central systems that are equipped with filters and centrifuges, and use a good source of clean water with low mineral content, emulsions have provided continuous service for up to a year with simple control of pH and emulsion strengths.





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TYPICAL TESTS

Appearance

Density, Kg/Lt at 15°C

Viscosity, cSt at 40°C

20:1 Emulsion Stability, 1 hour

Rust Prevention, Cast iron -

60:1 for 168 hours

Hi-Tec SOLUBLE CUTTING FLUID

Blue

0.895

45

No cream or separation

No rusting

"The facts stated and the recommendations made herein are believed to be accurate. No guarantee of their accuracy is made however, and unless otherwise expressly provided in written contract, the products are sold without conditions or warranties, expressed or implied. Purchasers should determine the suitability of such products for their particular purposes."

Product Code: HI6-2910-

Effective: April 2012

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