



## H.D. SOLUBLE OIL S-45

PREMIUM HEAVY DUTY SOLUBLE OIL FOR DIFFICULT TO MACHINE METALS



**Product Description:** H.D. SOLUBLE OIL S-45 is a carefully balanced blend of high quality mineral oil combined with an effective emulsifier, sulfur-chlorine anti-weld additive (EP) and fatty oils for additional lubricity. Used as an emulsion, this product combines the good cooling characteristics of conventional water soluble oils with the high load carrying properties of an active cutting oil. This permits its use where extreme pressure requirements and machining operations are too severe for conventional soluble oils. Additionally, this soluble oil is free of nitrites and phenols and foam inhibited to permit its use in high speed metal cutting operations.

### Features:

- Excellent cooling ability.
- High EP permits machining tough to cut steels.
- Smooth work finish provided by lubricity additive.
- Increased tool life through balanced additive package.
- Forms stable emulsion even with hard water.
- Foam inhibited.
- Safe to use - nitrite-free and phenol-free.
- Wide cutting range - from easy to machine to difficult to machine metals.
- Economical.
- Dyed Blue

**NOTE:** ALWAYS ADD NEAT OIL TO THE WATER. NEVER ADD WATER TO THE OIL. THIS WILL AVOID THE POSSIBILITY OF GETTING AN INVERT EMULSION (WATER DROP SURROUNDED BY OIL) WHICH HAS LOW COOLING ABILITY.

### Typical Uses:

- For cutting difficult to machine ferrous metals of all types.
- Recommended for use in surface broaching, pipe threading, plain threading and tapping of ferrous metals with machinability rating between 60-100. Recommended water to oil ratio 5:1 through 10:1 depending on machinability rating.
- Also used in milling, boring and turning, plain drilling, sawing and thread and form grinding of ferrous metals with machinability rating between 30-100. Recommended water to oil ratio 10:1 through 20:1 depending on machinability rating.
- Commonly used in plain grinding operations at ratios between 40:1 through 50:1.
- NOT suitable for cutting copper or its alloys as the EP properties will tarnish these metals. Can be used on aluminum.

**NEVER USE SOLUBLE OIL EMULSIONS FOR CUTTING MAGNESIUM. MAGNESIUM AND WATER ARE A FIRE HAZARD.**

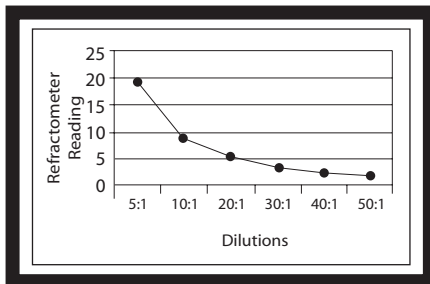
### Typical Specifications:

#### PARAMETERS

#### TYPICAL RESULTS

#### AP SOLUBLE OIL S-45

Gravity, °API	17.4
Appearance	Bright
Color	Blue
Viscosity:	
SUS @ 100°F.	225
cSt. @ 40°C.	43.4
Active Sulfur, Wt. %	0.5
Chlorine, Wt. %	2.0
Cold Test @ 40°F.	No Separation
Emulsibility	Pass
Emulsion Stability	Pass
Foaming	Pass
pH, 5% In DI Water	9.0



VALUES SHOWN HERE ARE TYPICAL AND MAY VARY