

## HE-2® (Heavy Duty, High Viscosity Water Soluble Oil Concentrate)

### FEATURES

- High content of extreme pressure additives
- For the most severe metal removal applications
- Extend sump life, reduce consumption
- Ideal for long term use in recirculating systems
- Non-Toxic – Non-Corrosive
- Superior lubricity package
- Compatible with common machine tool components
- Operator Friendly

Approved by Lockheed Martin Corp.

### GENERAL DESCRIPTION

HE-2 combines a high viscosity mineral oil base with advanced Extreme Pressure additives to provide maximum performance. The result is an unmatched trio of physical film, chemical film and cooling properties that minimize tool wear. It is ideal for slower metal removal, severe deformation, difficult machining and finish intensive operations of all materials. It is ideal for those companies looking to replace straight oils.

### APPLICATIONS

Primary				Secondary
Burnishing	Reaming	Broaching	Fine blanking	Surface Grinding
Drilling	Stamping	Forming	Band sawing	Creep Feed Grinding
Milling	Turning	Drawing	Rolling	

### MATERIALS

Primary		Secondary	
Aluminum Alloys	Titanium & Tungsten	Plastics	Steels: Bhn up to 350
Chromium Alloys	Molybdenum		
Nickel Alloys	Refractory Metals		
Stainless Steels: Bhn 350 to 450	Steels: Bhn 350 to 450		

### MIXING INSTRUCTIONS & MAINTENANCE

**Mixing Instructions:** Always premix coolant before adding to the machine sump. For best results, Hangsterfer's Accu-Mix 26270 proportioning unit should be used. To maintain recommended concentration make-up should be added at one-half the desired concentration. For example, to maintain 6%, first charge the machine at 6%, then as needed add make-up at 3%. Never add straight water or concentrate directly to machine.

**Maintenance:** HE-2 is a biostable coolant, designed to control the growth of bacteria. Regular maintenance is required for maximum performance. Concentration should be monitored regularly with a calibrated refractometer. HE-2 gives a direct read on the refractometer (e.g. 5=5%). Tramp oils should be removed from the coolant surface regularly to prevent unwanted bacterial growth. Keep coolant system free of cleaners, solvents and other contaminants.

<b>Operation</b>	<b>Concentration</b>	<b>Operation</b>	<b>Concentration</b>
General Machining, Turning, Drilling	8% - 12%	Cold Sawing, Band Sawing	5% - 25%
Boring, Reaming, Burnishing	8% - 12%	Drawing	10% - 30%
Forming	5% - 25%	Stamping	10% - 30%
Broaching, Hobbing, Shaving	12% - 20%	Fine Blanking	10% - 30%
Roll Tapping, Cut Tapping, Thread Rolling	10% - 15%		

<b>PRODUCT CHARACTERISTICS</b>				
<b>Product Name: HE-2</b>		<b>Concentration Dilution Table</b>		
Form	Liquid			
Color	Green			
Odor	Mild			
Specific Gravity	0.98 - 1.00	<b>%</b>	<b>Ratio</b> Concentrate: Water	Refractometer
Viscosity: SUS @ 100°F	880 - 1043	20%	1:5	20
cSt @ 40°C	190 - 225	15%	1:7	15
Flash Point, COC, °F/°C	320/160	10%	1:10	10
Solubility in Water	100%	7.5%	1:13	7.5
Vapor Pressure, mm Hg @ 25°	<0.01	4%	1:25	4
pH @ 10%	9.0 - 9.4	3%	1:33	3
Chlorine	Added as EP Additive	2.5%	1:40	2.5
		2%	1:50	2
		1%	1:10	1

**Refractive Index Multiplier = 1**

**SHIPPING UNITS**

HE-2 is available in 5 gallon, 55 gallon and Intermediate Bulk Containers (275 gallon). All products are distributed worldwide.

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