



## DESCRIPTION:

MetLube is a revolutionary, multi-machine, multi-application metal working fluid built on chemistry unlike any other found in the industry. This unique **Complex Synthetic\*** technology offers substantial operational cost savings and superior performance while assuring environmental and worker safety.

**\*Complex Synthetic:** The interaction and synergy of this chemistry creates superior lubricity, heat dissipation (cooling), cleaning action, corrosion and microbial life protection. The combination of these features provides cost savings and benefits such as improved productivity, tool life, surface finishes and sump/system life.

## FEATURES & BENEFITS:

	Features	Benefits	Bottom Line
Performance	High lubricity Low viscosity High heat dissipation	Longer tool life Faster cut speeds Superior surface finish, more precise cuts Reduced drag-out, lower replacement costs	Higher productivity Lower operating cost
	Highly stable, long solution life	Lower chemical usage Fewer change-outs, less down-time	
	Non-corrosive, protects against rust	Capital equipment longevity Parts do not corrode	
	Multi-machine, multi-application	Reduce operational complexity	
	Cleans as it machines	Reduces manufacturing steps	
Worker Safety	Does not support microbial life No odors No smoking Non-flammable Cleanliness	Better work environment Does not cause dermatitis or respiratory related illness No biocides included or needed	Higher productivity Lower operating cost
Environmental	Waste treatable, bio-degradable	Easier to dispose	Higher productivity Lower operating cost
	Rejects tramp oils	Longer system life	

## PHYSICAL & CHEMICAL PROPERTIES:

Appearance . . . . . Clear amber liquid  
 Boiling Point . . . . . ~ 215° F (102° C)  
 Freezing Point . . . . . 21° F (-6° C)  
 Rinsibility . . . . . No residue or film  
 pH (concentrate) . . . . . 9.5 – 10.5  
 Evaporation Rate . . . . . < Water  
 Specific Gravity . . . . . 0.996  
 Vapor Pressure . . . . . Slightly less than water  
 Vapor Density . . . . . 1  
 Solubility in Water . . . . . 100%

## NORMAL OPERATING CONDITIONS:

	Normal
Temperature	Ambient
Refractive Index @ 25° C (77° F)	2% – 7% Brix
pH @ 25° C (77° F)	8.5 – 9.5
Water TDS	0 – 800 ppm
Working Solution TDS	300 – 2,000 ppm
Total Suspended Solids	< 0.25% b.v.

## MAKE-UP PROCEDURE:

The MetLube solution ratio is easily adjustable. Depending upon application, it can be used as a 100% concentrate for use as a corrosion preventative compound or diluted as thin as 6% for machining. The following are suggested operating concentrations. For more specific applications, please refer to the MetLube Operating Guide.

*For most/general applications:*

Water (see note below)\* . . . . . 80% – 94% by volume  
 MetLube Concentrate . . . . . 6% – 20% by volume

Add water to system first, followed by MetLube. Mix thoroughly. See MetLube Operating Guide for specific operating instructions for machine cleaning and new sump/system charging procedures.

\*Note: As a guideline, the water should have a Total Dissolved Solids (TDS) reading of below 800 ppm (optimally 80-200 ppm), contain less than 80 ppm chlorides and sulfates, and less than 30 ppm phosphates. The MetLube working solution should be replaced when TDS exceeds 2,000 ppm.



## APPLICATIONS:

	Aluminum	Steel	Stainless Steel	Cast Iron	Specialty Alloys (Inconel, Titanium, etc.)	Composites
Drilling	✓	✓	✓	✓	✓	✓
Drilling – Blind Hole	✓	✓	✓	✓	✓	✓
Milling	✓	✓	✓	✓	✓	✓
Reaming	✓	✓	✓	✓	✓	✓
MAPAL Reaming	✓	✓	✓	✓	✓	✓
Boring	✓	✓	✓	✓	✓	✓
Turning	✓	✓	✓	✓	✓	✓
Honing	✓	✓	✓	✓	✓	✓
Broaching	✓	✓	✓	✓	✓	✓
Tapping	✓	✓	✓	✓	✓	✓
Sawing	✓	✓	✓	✓	✓	✓
Grinding	✓	✓	✓	✓	✓	✓
Grinding – Centerless	✓	✓	✓	✓	✓	✓
Grinding – ID/OD	✓	✓	✓	✓	✓	✓

## SAFETY & WARNING:

Pantheon Chemical recommends that the company operator read and review the Pantheon Chemical Material Safety Data Sheets for the appropriate health and safety warnings before use.

*Material Safety Data Sheets are available from Pantheon Chemical*

**Spill response:** Flush with water. Mop up any remainder and dispose of in accordance with federal, state, or local regulations.

**Special storage data:** Will freeze in temperatures below 21° F (-6.11° C)

## WASTE TREATMENT:

There are no Federal regulations restricting the disposal of MetLube concentrate into municipal wastewater systems. However, local regulations imposed by a state or municipality may regulate specific discharges, BOD and/or COD limits.

All contaminants should be considered on an individual basis. Each machining operation is unique in its potential for

**Skin:** Avoid prolonged or repeated skin contact with concentrate. Wash thoroughly with soap and water after handling.

**Eyes:** Flush with large amounts of water. If irritation persists, seek medical attention promptly.

**Ingestion:** Drink plenty of water or fruit juice. Do not induce vomiting. Seek medical assistance.

contaminates. If there is sufficient potential for contamination that may be regulated by a government agency, test a sample for the suspected contaminants prior to disposal.

Please follow all Federal, State or Local regulations regarding the treatment of waste.



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