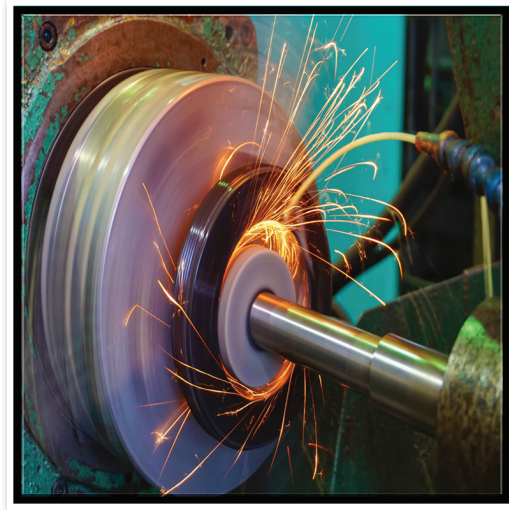


# AMALIE®

Better than it has to be®  
Since 1903



## SOLUBLE OIL 294

### BENEFITS:

- » Recommended for Both Ferrous and Non-Ferrous Metals
- » Nitrite and Phenol Free
- » Foam Inhibited



MADE IN U.S.A.



Better than it has to be<sup>®</sup>  
Since 1903

# SOLUBLE OIL 294

**AMALIE Soluble Oil 294** is a water-soluble metal cutting oil containing rust and foam inhibitors and an emulsifier that effectively stabilizes the fluid in both soft and hard water. **AMALIE Soluble Oil 294** is recommended for use in cutting ferrous and non-ferrous metals, in boring milling, and turning operations. It is designed for machineability of both ferrous and non-ferrous metals with ratings of 50 - 100. The formulation contains no nitrite or phenol and is safe to use in high-speed cutting operations. **AMALIE Soluble Oil 294** is recommended for machining operations of plane and shaping, drilling and sawing, and grinding using dilutions with water at ratios of 30:1 for aluminum and copper, 10:1 for copper alloys, 15:1 for ferrous metals. **AMALIE Soluble Oil 294** is economical, forms a stable emulsion, and offers rust protection for machine and work piece.

## TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

API Gravity.....	28.0
Viscosity @ 100°C, cSt.....	6.4
Viscosity @ 40°C, cSt.....	42.0
Viscosity Index.....	100
Flash Point, °C.....	213
Pour Point, °C.....	-21

Typical values are listed. Variations not affecting the performance of this fluid may occur during production; however, these variations will not fall outside of set specification parameters.

### Additional Information

Please use proper handling and care that you would use with any lubricating oil.

Please consult AMALIE Technical Services or your local representative for a full listing of applications.

Technical Services: • (800) 368-1264 • [techservices@amalie.com](mailto:techservices@amalie.com)

### SOLUBLE OIL

VISCOSITY	PACK SIZE	PART #
294	55 Gallon Drum	160-63913-05

The data presented herein are believed to be accurate; however, Amalie Oil Company shall not be liable for its content and makes no warranty with respect thereto.

### Health and Safety

Safety Data Sheets (SDS) are available from your sales representative or at [AMALIE.com](http://AMALIE.com).

## GUIDE FOR MIXING SOLUBLE OILS

Soluble oil, when mixed with water, will have an opaque, milky appearance.

### Typical Mixing Rates

Note: The following is a guideline of mixing ratios and can vary depending upon conditions such as water quality and make-up addition. Slight adjustments to mix ratios may be required for optimum workability.

**Ferrous and non-ferrous metals with machinability rating of 50-100 (recommended operations cutting, milling, boring and turning).**

Aluminum and Copper; 30:1  
Copper Alloys; 10:1  
Ferrous Metals; 15:1

**Ferrous and non-ferrous metals with machinability rating of 30-100 (recommended operations planing, plain drilling and sawing).**

Aluminum and Copper; 30:1  
Copper Alloys; 10:1  
Ferrous Metals; 20:1

**Ferrous and non-ferrous metals plain grinding; 40:1 to 50:1.**

**Note: Mixing should be done by adding the neat oil to the water. Do not add the water to the neat oil. Adding water to the neat oil may cause what is known as an invert emulsion.**

### Before mixing the solution:

- 1) Use a correct estimate for the volume of the sump.
- 2) Know the correct order of addition: **always add neat oil to water, never add water to neat oil.**

The emulsifiers contained in the neat soluble oil suspend the oil particles in the water forming a stable emulsion. Adding water to the neat oil will cause the emulsifiers to "grab" for the water forming an invert emulsion. This can cause the mix stability and concentration to be less than required. The mixture will have what appears to be a floating un-emulsified layer and a lighter color than a properly mixed fluid.

### Mixing Procedure

1. Properly measure and fill the tank or reservoir with half of the required water.
2. Add the correct volume of concentrate (use a measuring device) directly to the water.
3. Add the remaining water to create agitation
4. Allow the fluid to mix thoroughly. The machine tool coolant pump can be turned on to aid in mixing and circulating the fluid will help to form a well-mixed product.
5. If possible, check the concentration of the fluid.

This document is intended to be used as a guide for the mixing of soluble oils. This guide does not purport to address all of the safety concerns if any associated with its use. It is the responsibility of the user to establish appropriate health and safety guidelines prior to use. The formulator shall not be held responsible for misuse or adverse effects of the use of this document including loss of working material and makes no warranty covering its use.

### Applications

Multi-purpose water soluble cutting fluid for planing, shaping, drilling, and grinding of both ferrous and non-ferrous metals.