

Technical Bulletin**SURFONIC[®] MW-100 Additive****PRODUCT DESCRIPTION**

SURFONIC[®] MW-100 additive is a single-component vegetable oil emulsifier designed to enhance the metalworking properties of vegetable oil-based lubricants. The product is a slightly turbid liquid at room temperature.

APPLICATIONS

- Vegetable oil-based metalworking fluids
- Emulsion hydraulic fluids
- Emulsifier for trimethylolpropane (TMP) and other polyol esters.

SALES SPECIFICATIONS

Property	Specifications	Test Method*
Appearance at 25°C	Slightly turbid liquid, substantially free of foreign matter	ST-30.1
Acid number, mg KOH/g	14 max.	ST-31.46, D
Color, Gardner	4 max.	ST-30.13
pH, 1% aqueous	6 - 8	ST-31.36, C

*Methods of Test are available from Huntsman Corporation upon request.

TYPICAL PROPERTIES**Chemical Properties**

Molecular Weight (approximate)	2500
HLB Value	5-7
Water Solubility	Self-emulsifying

Regulatory Information

DOT/TDG Classification	Not Regulated
HMIS Code	1-1-0
CAS Number	Proprietary
TSCA Inventory	Yes
WHMIS Classification	Not Regulated
Canadian DSL	Yes

Physical Properties

Flash point, PMCC, °F	464
Flash point, PMCC, °C	240
Pour point, °F	30
Pour point, °C	-2
Density, g/ml at 20°C (68°F)	0.98
Weight, lbs/US gal at 20°C (68°F)	8.3
Viscosity, kinematic	
cSt at 20°C (68°F)	393
cSt at 40°C (104°F)	117

Solubility Properties

Water	Self-emulsifying
Vegetable oil	Soluble
TMP oleate	Soluble
TMP caprylate	Soluble

TOXICITY AND SAFETY

For information on the toxicity and safe handling of this product, please read the Material Safety Data Sheet prior to use of the product.

HANDLING AND STORAGE

SURFONIC MW-100 additive may be satisfactorily stored in carbon steel tanks using steel pipes and pumps. Caution must be exercised, however, to keep the material in the anhydrous state to prevent severe corrosion to the carbon steel tank and related equipment. A drier on the breathing nozzle is recommended to help maintain anhydrous conditions in the storage tank.

For longer term color stability, it is recommended that the product be stored under an inert atmosphere. Solid sediment may form upon standing. There should be circulation in the storage vessel to keep solids suspended.

Low pressure steam coils in storage tanks and steam tracing of transfer lines should be provided in cases where low environmental temperatures may make pumping of the product difficult.

SHIPPING DATA

Product is available in tank cars, tank trucks and drums of 430 pounds (195 kilograms) net weight. Small samples are available by contacting our sample department at 1-800-662-0924.

APPLICATIONS INFORMATION

Typically corrosion-control packages should include a mixed amine system containing triethanolamine and DIGLYCOLAMINE[®] Agent (DGA[®] Agent) to neutralize a mixed fatty acid system. When SURFONIC MW-100 additive is used, petroleum sulfonate is not required for emulsification but it can be added if desired for corrosion control.

Extreme pressure agents based on phosphate esters are compatible with SURFONIC MW-100 additive. SURFONIC PE-BP2 surfactant is a high-phosphorus phosphate ester that can be formulated to give reduced foam in formulations based on SURFONIC MW-100 additive. The prototype formulation below is inherently low foaming.

Formulations based on SURFONIC MW-100 additive are stable at water hardness levels up to about 700 ppm. Where stability is required at higher water hardness levels due to added fatty acids or other additives, SURFONIC CO-42 surfactant, a castor oil ethoxylate, can be included in the formulation. Generally no more than 3% of SURFONIC CO-42 surfactant is needed; higher loadings may affect performance in soft water.

TYPICAL FORMULATION

<u>Component</u>	<u>Concentration, wt%</u>	<u>Function</u>
SURFONIC [®] MW-100 additive	25	Emulsifier
Canola oil	65	Lubricity agent
Sulfurized fatty acid	4	EP agent
Alkanolamide	3	Corrosion control
Biocide	2	Preservative
Dye, Other additives	q.s.	Aesthetic agents

Products based on this formulation can be diluted at 20:1 to 100:1 (with adjustments to increase corrosion protection).

**Huntsman Corporation
Business Offices**

10003 Woodloch Forest Dr.
The Woodlands, TX 77380
(281) 719-6000

**Huntsman Advanced Technology
Center**

Technical Service
8600 Gosling Rd.
The Woodlands, TX 77381
(281) 719-7780

Samples 1-800-662-0924

www.huntsman.com

3635-1107

Copyright © 2007 Huntsman Corporation or an affiliate thereof. All rights reserved.

SURFONIC[®] is a registered trademark of Huntsman Corporation or an affiliate thereof in one or more, but not all countries. DGA[®] and DIGLYCOLAMINE[®] are registered trademarks of Huntsman Corporation or an affiliate thereof in one or more, but not all countries.

Huntsman Petrochemical Corporation warrants only that its products meet the specifications stated in the sales contract. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information presented in this document is believed to be reliable and to represent the best available data on these products, NO GUARANTEE, WARRANTY, OR REPRESENTATION IS MADE, INTENDED, OR IMPLIED AS TO THE CORRECTNESS OR SUFFICIENCY OF ANY INFORMATION, OR AS TO THE MERCHANTABILITY OR SUITABILITY OR FITNESS OF ANY CHEMICAL COMPOUNDS FOR ANY PARTICULAR USE OR PURPOSE, OR THAT ANY CHEMICAL COMPOUNDS OR USE THEREOF ARE NOT SUBJECT TO A CLAIM BY A THIRD PARTY FOR INFRINGEMENT OF ANY PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT. EACH USER SHOULD CONDUCT A SUFFICIENT INVESTIGATION TO ESTABLISH THE SUITABILITY OF ANY PRODUCT FOR ITS INTENDED USE. Liability of Huntsman Petrochemical Corporation and its affiliates for all claims is limited to the purchase price of the material. Products may be toxic and require special precautions in handling. For all products listed, user should obtain detailed information on toxicity, together with proper shipping, handling and storage procedures, and comply with all applicable safety and environmental standards.