



UCON™ Metalworking Lubricant EPML-577

Product Description

UCON Metalworking Lubricant EPML-577 is a polyalkylene glycol lubricant based product that provides excellent hydrodynamic and extreme pressure lubrication. Since EPML-577 is a complete lubricity package around which effective synthetic metalworking fluids can be formulated, it does not require the addition of lubricity modifiers, such as fatty acids, to be effective. EPML-577 exhibits inverse solubility and is thus able to provide hydrodynamic and extreme pressure lubrication at low concentrations in water. Heat generated at the point of cut causes EPML-577 to separate out of solution, forming a thin, concentrated film of lubricant on the tool and workpiece surfaces. This film provides excellent lubricity. EPML-577 contains no chlorine or sulfur based additives.

UCON Metalworking Lubricant EPML-577 is designed to provide long-term, trouble-free service in recirculating central coolant systems. EPML-577 is stable and usable in hard water. It resists foaming and remains fluid to prevent the buildup of gummy or tacky residues.

Typical Physical Properties†

Form	Clear liquid
Appearance	Yellow to light brown
Viscosity at 100°F	130 – 180 SUS
Alkalinity	2.10 – 2.50 meq/g
Weight per Gallon at 20°C	9.036 lbs/gal
Specific Gravity at 20/20°C	1.086
Flash Point, Closed Cup (ASTM D 93)	110°F, 43°C
Flash Point, Open Cup (ASTM D 92)	200°F, 93°C

†The physical property data listed are considered to be typical properties, not specifications

Corrosion Protection

UCON EPML-577 contains amine functionality that contributes to the rust protection of cast iron and steel. EPML-577 contributes respectable rust inhibition in hard waters. Like any system, however, it is more effective with soft or treated waters. UCON EPML-577 should be combined with a supplemental nonnitrite corrosion inhibitor to develop maximum protection. EPML-577 is non-staining to common nonferrous metals and is suitable in lubricants intended for copper or aluminum alloys.

Environmental Acceptability

UCON Metalworking Lubricant EPML-577 is not expected to contain sulfur, chlorine, inorganic phosphate, oil, or nitrites. However, since EPML-577 contains amine functionalities, it should not be used with nitrites.

Suggested Starting Formulations – Cutting Fluid

UCON Metalworking Lubricant EPML-577	30%
Nonnitrite Corrosion Inhibitor	10 – 20 %
Triethanolamine	5 – 10%
Biocide	As recommended by manufacturer
Water	Balance

Dilute 10:1 – 50:1 depending on the severity of the operation

Suggested Starting Formulations – Grinding Fluid

UCON Metalworking Lubricant EPML-577	10 - 15%
Nonnitrite Corrosion Inhibitor	10 – 15%
Triethanolamine	5 – 10%
Biocide	As recommended by manufacturer
Water	Balance

Dilute 10:1 – 50:1 depending on the severity of the operation

Product Stewardship

Dow encourages its customers and potential users to review their applications from the standpoint of human health and environmental aspects. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with environmental and product safety considerations. Dow literature, including Material Safety Data Sheets, should be consulted prior to the use.

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