



Gulf Emulsil NT

Semi-synthetic Metalworking Fluid

Product Description

Gulf Emulsil NT is semi-synthetic water miscible metalworking fluid, which provides excellent cooling and lubricity in machining operations. The emulsion is translucent and homogeneous micro emulsion, which offers a high degree of emulsion stability, corrosion protection, and resistance to microbial growth. It is free from nitrite, phenol, nonyl-phenol, chlorine and heavy metals; as a result, it is not susceptible to health hazard and it is gentle to the environment with respect to disposal.

Features & Associated Benefits

Features	Associated Benefits
Stable translucent emulsion	Longer sump life, visibility of operators, closer control of machining operations
Homogeneous micro-emulsions	Better lubricity
Excellent rust protection	Longer life of machine-tools, reduced rejections of work-pieces
Environmental friendly	Acceptability to operators, ease of disposal

Applications & Recommended Concentrations

Applications	Concentrations
Finishing Operations (Internal & External Grinding)	4-6%
General Machining (Turning, Chamfering, Counter-sinking)	5-7%
Heavy duty machining (Reaming, Tapping, Broaching)	6-8%

Specifications & Typical Properties

Specification	IS 1115-98 (Reaffirmed March 2002)	
Typical Properties		
Test Parameters	ASTM Method	Typical Values
Emulsion Type		Translucent Fluid
Kinematic Viscosity at 40°C, cSt	D 445	96.34
Flash Point, °C, COC	D 92	173
Density @ 15 °C Kg/l	D 1298	0.9800
pH (3% emulsion in 200 ppM Hard Water)		9.2
Cast Iron Corrosion test (5% emulsion in 400 ppM Hard Water)	IS :1115 Annexure A	Passes
Emulsion stability	IS: 1448	Passes

-----2

Properties mentioned above are typical only and minor variations, which do not affect the product performances, are to be expected in normal manufacturing. The above information is based on past history of the grade only and must not be construed as a guarantee of performance. Follow equipment manufacturer's recommendations for performance level and viscosity grade. The Material Safety Data Sheet for this product is available from your nearest Gulf Distributor.

Gulf Oil International

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Additional Information

To get the optimum results

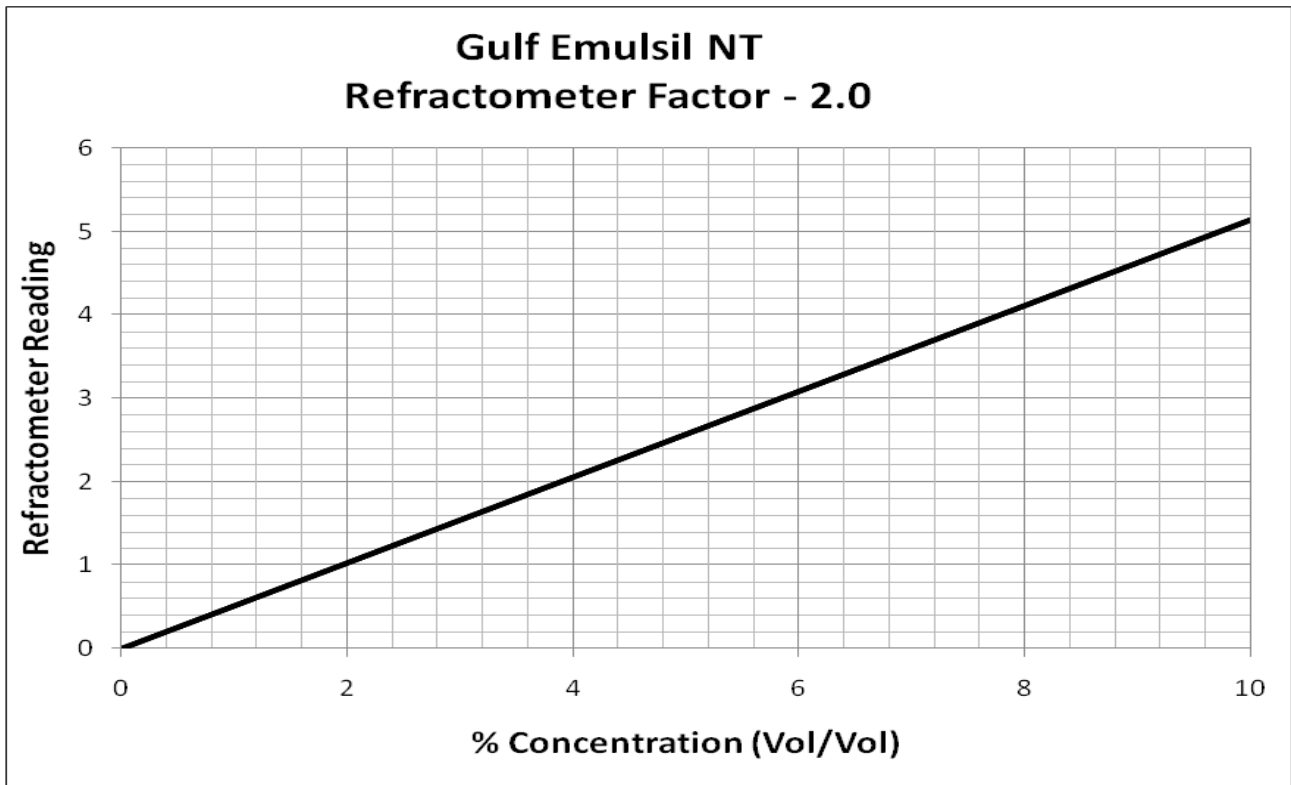
- Always add oil to the water in specified concentration. Never add water to the oil.
- Use a non-galvanized clean container for preparation of emulsion.
- Check the emulsion strength regularly and top-up as per Refractive Index chart.
- Maintain the pH of dilution within the range of 8.7 and 9.3
- Bacterial Count of emulsion should be controlled below 10^5 colony forming unit/ml.
- Fungal concentration of emulsion should be restricted to 1000 organism/ml.
- Conductivity of emulsion should not exceed 4 milliSiemens/cm

Metal Compatibility

Ferrous Metals	Yes	Titanium	No
Yellow Metals	Yes	Magnesium	No
Aluminum	Yes		

Water quality for optimum life of cutting fluid

Water Hardness	Should range between 80 to 125 ppM of CaCO ₃
Sulphate Ions	100 ppM maximum
Chloride Ions	50 ppM maximum
Phosphate Ions	30 ppM maximum



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Top-up procedure to maintain specified concentration

- Observe Refractometer reading of emulsion in the system following the standard operating procedure of using Refractometer.
- Find out the concentration of emulsion in percentage (Vol/Vol) by reading through the above graph corresponding to Refractometer reading.
- Find out the fraction concentration as
$$t' = \{\text{Concentration of emulsion in percentage (Vol/Vol)}\}/100$$
- Find out the amount of quantity of oil to be added in liter as
$$q = \{[(t-t')*V]/(1-t)\}$$
where t = specified fraction concentration = {Specified concentration in percentage (Vol/Vol) /100}
 V = Volume of sump in liter

Handling & Storage guidelines

- Refer Safety Data Sheets for Health and Safety related information.
- Used product to be disposed by referring to applicable statutory guidelines.
- Store preferably in in-door condition.
- Under normal storage conditions, the product should be consumed within 1 year for optimum performance.

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