

**Technical Bulletin****MORPHOLINE**

**Morpholine** is a colorless, mobile, hygroscopic liquid with characteristic amine-like odor.

**APPLICATIONS**

A corrosion inhibitor, especially in steam boiler systems; an emulsifier for cosmetics, rubless waxes, and polishes; a separating agent for volatile amines; an intermediate in the manufacture of optical brighteners; an intermediate for textile lubricants, softening agents, adjuvants, whitening agents, sizing emulsifiers, rubber vulcanization accelerators, antioxidants, surface-active agents, plasticizers, viscosity improvers, insecticides, fumigants, herbicides, dyes, catalysts, bactericides, analgesics, anesthetics, and other physiologically active agents.

**SALES SPECIFICATIONS**

<u>Property</u>	<u>Specifications</u>	<u>Test Method*</u>
Appearance	Clear and substantially free of suspended matter	ST-30.1
Color	15 max.	ST-30.12
Morpholine, wt%	99.0 min	ST-35.179
Specific gravity, 20/20°C	1.001 min. – 1.004 max.	ST-30.31
Water, wt%	0.3 max.	ST-31.53, 6

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

**ADDITIONAL INFORMATION****Regulatory Information**

DOT/TDG Classification	Morpholine
HMIS Code	3-3-0
WHMIS Classification	Class E: Corrosive
	Class D-1B: Toxic; Class B-2: Flammable liquid
CAS Number	110-91-8

**Chemical Control Laws**

Australia, AICS	Listed
Canada, DSL	Listed
Europe, EINECS/ELINCS	Listed
Japan, METI	Listed
United States, TSCA	Listed

**Typical Physical Properties**

Boiling point, °C (°F)	128 (263)
Flash point, TCC, °C (°F)	35 (95)
Melting point, °C (°F)	-5 (23)
pH	11.2
Specific gravity, 20/20°C	1.0
Vapor pressure, mmHg, 20°C (68°F)	7
Viscosity, cSt, 20°C (68°F)	2
VOC Content (%), by ASTM D 2369	100
Water solubility (%)	> 10

**TOXICITY AND SAFETY**

For additional information on the toxicity and safe handling of this product, consult the Material Safety Data Sheet (Safety Data Sheet in Europe) prior to use of this product.

**HANDLING AND STORAGE**

For detailed information on the storage and handling of Morpholine, see our bulletin on "Storage and Handling of Morpholine."

**AVAILABILITY**

Morpholine is available in coiled tank cars (tank wagons in certain areas) and 55-gallon drums containing 460 pounds net weight. Samples are available by contacting our sample department at 1-800-662-0924.

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**Samples 1-800-662-0924**

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