

# Technical Bulletin

## HUNTSMAN

### JEFFTREAT® MS-100 SOLVENT

#### DESCRIPTION

A clear, water white, hygroscopic liquid with an ammoniacal odor.

#### SALES SPECIFICATIONS

The following sales specifications are for commercial grade JEFFTREAT® MS-100 solvent and are subject to change without notice. The appropriate analytical procedures for these specifications are available on request.

		Method of Determination
Appearance	Clear to slightly hazy and substantially free of suspended matter	ST-30.1
Color, Pt-Co	150 max.	ST-30.12

#### TYPICAL PROPERTIES

Flash point, PMCC, °F	>200
Freezing point, °C (°F)	<21 (<-6)
Specific gravity, 20/20°	1.04
Viscosity, 100°F, cSt	>25
Weight per gallon, 20°C, lb	8.7

#### APPLICATIONS

JEFFTREAT® MS-100 gas treating solvent has been developed to selectively remove hydrogen sulfide from gas streams containing hydrogen sulfide and carbon dioxide mixtures. It can also be effectively used in sweet gas treating to meet variable carbon dioxide specifications found in the

natural gas industry. Typical applications for JEFFTREAT® MS-100 solvent include:

- Claus tail gas treating
- Natural gas treating
- Coal and waste gasification gases treating
- Refinery and petrochemical gas treating

Traditionally, primary and secondary alkanolamines having little or no hydrogen sulfide selectivity, such as monoethanolamine (MEA) and diethanolamine (DEA), have been used for the combined removal of hydrogen sulfide and carbon dioxide from gas streams. However, as energy and capital costs increase, and with the increased use of sour crudes and natural gases, selectively removing hydrogen sulfide from gas streams containing mixtures of hydrogen sulfide and carbon dioxide has become more economically attractive.

#### ADVANTAGES

JEFFTREAT® MS-100 solvent is a specially formulated, methyldiethanolamine (MDEA)-based gas treating amine. Relative to MEA, DEA and diisopropanolamine (DIPA), JEFFTREAT® MS-100 solvent exhibits higher hydrogen sulfide selectivity, higher acid gas loading capability, lower corrosion and degradation tendency, generally lower amine makeup, and lower energy to regenerate. In addition, there is no need for a reclaimer. These characteristics can translate into lower operating costs, increased process capacity of existing equipment, and reduced capital costs for new equipment.

Compared to generic MDEA, JEFFTREAT® MS-100 solvent will absorb less carbon dioxide, resulting in a higher quality acid gas feed to downstream sulfur plants.

### **USER GUIDELINES**

Huntsman Corporation recommends that JEFFTREAT® MS-100 solvent be used in concentrations of 40 to 50 wt. %, depending on operating parameters specific to each individual unit.

### **TECHNICAL SERVICES**

Additionally, the purchase of JEFFTREAT® MS-100 solvent entitles customers to a full line of technical services provided by Huntsman Corporation's gas treating specialists. These services include assistance with initial process design, operator training, start-ups, and trouble-shooting plant operations, as well as solution analyses and interpretation.

### **HANDLING AND STORAGE**

The handling and storage of JEFFTREAT® solvents present no unusual problems. See the section on toxicity and safety for additional information.

The properties and alkaline nature of JEFFTREAT® solvents should be considered when choosing materials of construction. JEFFTREAT® solvents should not be stored in tanks made from zinc, galvanized steel, or copper and its alloys since the solvent will react with copper to form complex salts. Also avoid the use of elastomers such as Buna N, Viton®, neoprene, and nitrile as these materials tend to swell when exposed to the amine. Kalrez® 1050 LF performs satisfactorily in amine service as well as materials made from polypropylene and Teflon®.

A carbon steel storage tank, constructed according to a recognized code, is generally satisfactory. Carbon steel transfer lines, joined by welds or flanges, are suitable. Screw joints are subject to failure unless back-welded. Flexitallic® gaskets work well for flanged connections. For pumps, a Durametall Type RO-TT mechanical seal or equivalent is suitable.

### **TOXICITY AND SAFETY**

On the basis of acute studies with laboratory animals, JEFFTREAT® MS-100 solvent is considered slightly toxic by single oral dose and practically nontoxic by single dermal application. JEFFTREAT® MS-100 solvent is considered moderately irritating to the eyes, but only slightly irritating to the skin. The product is not corrosive under the conditions of the DOT corrosivity test and is not classified as a hazardous material by DOT definition for transportation purposes.

Chemical-type goggles must be worn when handling JEFFTREAT® MS-100 solvent. In addition, exposed employees should exercise reasonable personal cleanliness, including washing exposed skin areas several times daily with soap and water and laundering soiled work clothes at least weekly.

For further information on the safe handling of JEFFTREAT® MS-100 solvent, consult the Material Safety Data Sheet.

### **AVAILABILITY**

JEFFTREAT® MS-100 solvent is currently available in 55-gallon drums, tank wagons, and tank cars.