

# Gas Treating Chemicals Technical Bulletin

## HUNTSMAN

### JEFFTREAT® MS-200 SERIES SOLVENTS JEFFTREAT® MS-205 SOLVENT

The JEFFTREAT® MS-200 series of methyldiethanolamine (MDEA) based formulated solvents provide bulk removal of hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>) from gas and gas-liquid hydrocarbon streams in primarily the gas processing industry.

#### APPLICATIONS

JEFFTREAT® MS-205 formulated MDEA solvent is a second generation MDEA-based formulated solvent for gas and liquid treating applications. It should be considered as an alternative for applications currently using first generation primary or secondary alkanolamines such as MEA and DEA to remove H<sub>2</sub>S and CO<sub>2</sub>. The JEFFTREAT® MS-205 solvent is an effective and economical alternative for many treating applications, including:

- Natural gas and gas liquids,
- Refinery gas and gas liquids,
- Coal and waste gasification gas, and
- Petrochemical gas and gas liquids.

Primary and secondary alkanolamines, such as monoethanolamine (MEA) and diethanolamine (DEA), have been used for many years in bulk acid gas removal applications. In recent years, formulated amine solvents based on MDEA such as JEFFTREAT® MS-205 solvent, have gained popularity due to several distinct performance advantages. JEFFTREAT® MS-205 solvent should be considered as a replacement solvent for gas and gas-liquid treating applications currently using primary or secondary alkanolamines. It offers the economic benefits of tertiary alkanolamines (MDEA), and the treating capability to meet low carbon dioxide specifications.

#### ADVANTAGES

The JEFFTREAT® MS-200 series solvents are specially formulated, MDEA-based solvents (with proprietary additives) that have special chemical properties including:

- Low heats of reaction,
- High acid gas loading,
- Minimal corrosivity, and
- Negligible degradation.

These chemical properties provide the following economic advantages for JEFFTREAT® MS-205 solvent over other gas treating solvents:

- ◆ Lower Operating Costs,
- ◆ Increased Processing Capacity of Existing Treating Equipment,
- ◆ Reduced Capital Cost for New Installations,

Additionally, the purchase of JEFFTREAT® solvents entitles customers to access a full slate of technical services provided by Huntsman's Gas Treating Team. These services include assistance with initial process designs, start-up assistance, training programs, plant operational troubleshooting and solution analysis and interpretation.

Huntsman recommends that JEFFTREAT® MS-205 solvent be utilized in concentrations of 40 to 50 wt.% for optimum process efficiency.

#### HANDLING AND STORAGE

The handling of the JEFFTREAT® MS-200 series products presents no unusual problems. A carbon steel storage tank, constructed according to a recognized code, is generally satisfactory. JEFFTREAT® MS-205 solvent should not be stored in tanks made from zinc, galvanized steel, or copper and its alloys. Carbon steel transfer lines, joined by welds or flanges, are

suitable.. Screw joints are subject to failure unless back welded. U.S. Rubber Company 899 gasket material, or its equivalent, is satisfactory for use with flange connections. Centrifugal pumps are preferred, although carbon steel rotary pumps can be used. A Durametallc Type RO-TT seal, or equivalent is suitable.

### TOXICITY AND SAFETY

On the basis of acute studies with laboratory animals, the JEFFTREAT® MS-200 series products should be considered moderately irritating to the eyes, but only slightly irritating to the skin. Chemical-type goggles with face shield should be worn during handling or use of the undiluted product or concentrated solutions. Contact lenses should not be worn. Protective clothing and gloves resistant to chemicals and petroleum distillates should be worn.

Should accidental eye contact occur, flush eyes with large amounts of water for at least 15 minutes and get medical attention. For skin contact, immediately flush skin with large amounts of water. Contaminated clothing should be laundered before reuse.

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. For further information, please refer to the material Safety Data Sheet (MSDS) for this product.

### AVAILABILITY

JEFFTREAT® MS-205 solvent as well as other JEFFTREAT® MS-200 series products are currently available in 55-gallon drums, tank wagons, and tank cars. Due to the proprietary nature of the product formulation, Huntsman typically supplies the product under confidentiality agreement. Sample confidentiality agreements are available from Huntsman's Gas Treating team in Houston at (713) 235-6198.

### PHYSICAL PROPERTIES

JEFFTREAT® MS-205 solvent exhibits physical properties similar to those of conventional alkanolamines and other formulated MDEA solvents. These include acceptable handling characteristics such as low freezing point and moderate viscosity. Selected physical properties of JEFFTREAT® MS-205 solvent are presented below:

	JEFFTREAT MS-205 Solvent 100 Wt.%	JEFFTREAT MS-205 Solvent 45 Wt.%	JEFFTREAT M Solvent 45 Wt.%
Freezing Point, °C	-23.5	NA	<-30
Viscosity, cP 100°F (38°C)	109	4.4	4.3
Density, g/ml 100°F (38°C)	1.062	1.040	1.035