

Technical Bulletin

JEFFTREAT[®] MP SOLVENT

JEFFTREAT[®] MP solvent is a methyldiethanolamine (MDEA) based solvent formulated to provide deep removal of carbon dioxide (CO₂) from gas processing applications such as hydrogen production, ammonia manufacture and cryogenic gas processing. Compared to ethanolamines (MEA and DEA) and ethanolamine formulated solvents, JEFFTREAT MP solvent allows deep CO₂ removal with greater acid gas loading capacity, superior chemical stability even at high temperatures, corrosion protection and longer product life under severe operating conditions.

JEFFTREAT MP bulk CO₂ solvent also has higher reaction rates with CO₂ than ethanolamine based formulated MDEA solvents. Rapid reaction with CO₂ allows JEFFTREAT MP solvent to achieve very deep CO₂ removal while retaining the characteristic of allowing deep regeneration.

APPLICATIONS

JEFFTREAT MP bulk CO₂ solvent can be used for gas and liquid treating applications. It should be considered as an alternative for applications which currently use first generation primary or secondary alkanolamines such as MEA and DEA to remove CO₂. JEFFTREAT MP solvent should also be considered for applications which currently use MDEA or formulated MDEA solvents, but require deeper CO₂ removal such as:

- Hydrogen Production Facilities,
- Ammonia Plants,
- Natural Gas Upgrading, and
- LNG Production.

JEFFTREAT MP bulk CO₂ solvent should be considered mainly for applications in which H₂S is not present or applications in which the mole ratio of CO₂ to H₂S in the untreated gas is very high. Huntsman recommends that JEFFTREAT MP solvent be used in concentrations of 40 to 50 wt.% for optimum process efficiency.

Conversions of Existing Solvent Inventories

Huntsman's Gas Treating Team can assist customers in evaluating the benefits of solvent conversions and determining the best strategy for performing a conversion. On-the-fly conversions (e.g. backfill of JEFFTREAT MP solvent on top of the original solvent) offer some benefit but usually do not result in performance equivalent to that obtained from dump and fill conversions.

JEFFTREAT MP bulk CO₂ solvent can usually be added to existing MDEA solvent inventories: however, a thorough engineering evaluation of the application by Huntsman's Gas Treating Team is recommended.

BENEFITS

JEFFTREAT[®] MP offers the following advantages over conventional solvents:

- Lower Operating Costs,
- Increased Processing Capacity
- using Existing Treating Equipment,
- Reduced Capital Cost for New Installations,
- Improved Product Stability.
- Lower Solvent Losses
- Reduced Corrosion

Additionally, the purchase of JEFFTREAT MP solvent entitles customers to 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.

ADDITIONAL INFORMATION

Regulatory Information

DOT Classification	Amines, liquid, corrosive, N.O.S. (Amine mixture)
TDG Classification	Corrosive liquid, N.O.S. (Amine mixture)
HMIS Code	3-1-0
WHMIS Classification	Class E: Corrosive

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)	187 (369)	pH (1% aqueous solution)	10-11
Flash point, PMCC, °C (°F)	> 200 (>392)	Viscosity, cSt, 40°C (104°F)	69
Specific gravity, 66/66°C	1.03	Water solubility	> 10

TOXICITY AND SAFETY

The JEFFTREAT[®] MP 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. For further information, please refer to the material Safety Data Sheet (MSDS) for this product.

HANDLING AND STORAGE

The handling and storage of JEFFTREAT MP presents no unusual problems. See the section on toxicity and safety for additional information.

The solvent properties and alkaline nature of JEFFTREAT MP should be considered when choosing materials of construction. JEFFTREAT MP 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 Durametallc Type RO-TT mechanical seal, or equivalent is suitable.

AVAILABILITY

JEFFTREAT MP is available in 55-gallon drums, tank wagons, ISO containers, and tank cars.

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