

Technical Data Sheet

AdapT 100

Applications

- Gas processing-other
- Gas treatment / sweetening / desulpheriz
- Natural gas processing
- Oil or gas processing
- Refining

Key Attributes

- Degradation resistance
- High solvent loading
- Low capex and opex
- Low corrosiveness
- Low energy requirements
- Low solvent make-up
- Selectivity

Product Description

AdapT 100 is a MDEA-based solvent designed for the selective removal of H₂S from H₂S and CO₂ containing gas streams.

The removal of sour or acid gas components such as hydrogen sulfide (H₂S) or carbon dioxide (CO₂) from gas streams is a common process, known as acid gas removal or gas sweetening. These impurities have to be eliminated or reduced to a specified level, for a variety of reasons: toxicity (H₂S), corrosiveness of the gas, low caloric value, environment or other reasons depending on the application of the gas.

For over 50 years, alkanolamines have been used for acid gas treatment in natural gas and petroleum processing industries. AdapT solvent range is based on today's most advanced and preferred alkanolamine for gas treatment technology: MDEA, and MDEA-based formulations.

Typical Properties

Property	Typical Value, Units
General	
Molecular Formula	C ₅ H ₁₃ NO ₂
Molecular Weight	119.16 g/mol
Appearance	Colorless liquid
Autoignition Temperature	280 °C
Boiling Point	243.3 °C
Critical Pressure	37 000 hPa
Critical Temperature	404 °C
Density	
@ 20°C	1.04 g/cm ³
Dissociation constant, pKa	
@ 25°C	8.68
Flash Point	
Closed Cup	138 °C
Freezing Point	-21.3 °C
Heat Capacity	
@ 20°C	1.72 kJ/kg·K
Heat of Formation	-91 649 kJ/kmol
Heat of Vaporization	418.7 kJ/kg

Octanol-water partition coefficient, log Pow (pH 10.5; at 23°C)	-1.16
Refractive Index @ 20°C	1.4642
Solubility in Water	Miscible
Vapor Density (air = 1)	4
Vapor Pressure @ 20°C	0.0031 hPa
Viscosity @ 20°C	99.05 mm ² /s

Compatibility and Solubility

AdapT 100 is miscible in all proportions with water. It is also soluble in most organic solvents.

Chemically it acts as both a tertiary amine and an alcohol. Neutralisation of the amino function by acids results in salt formation.

The product is stable at elevated temperatures but must be kept away from oxidants and acids.

Services

Amine Gas Treatment Unit system simulation

Based upon feed gas conditions, the installation design and type of amine, unit performance can be predicted and optimized. The simulation output and reporting are tailored towards your needs and focus on the issues at hand. These simulations combined with our application experience allow us to provide you with feedback on how to improve the amine gas treatment unit operations (financial, operational and quality) and to tailor our amine formulations to maximize performance, such as energy reduction and reduced amine consumption.

Technical support

Technical support is provided to all AdapT users. Our experienced team of engineers is available around the clock to respond to your questions. On-site troubleshooting by an experienced engineer can also be arranged. Eastman can assist you with root cause analysis and operational recommendations for issues such as off-spec treated gas, foaming, high amine losses, high energy consumption, under capacity, corrosion etc.

Amine analysis

Detailed chemical analysis of your amine solution is a key tool to determine the overall quality of the system and identify the root cause for problems such as foaming, corrosion, off spec product etc. Eastman's lab, highly experienced in amine analysis and interpretation, is at your disposal. Analysis of lean amine samples includes (a.o): sample appearance, physical-chemical properties, determination of free and bonded amine, acid gas loading foam test, metal scan etc.

The results of the analysis are interpreted by our specialist team and the necessary recommendations are provided. The frequency, content and reporting of the analyses is customized towards your needs. Full results are typically available within 7 working days after receipt of the samples.

Sample kits

Sample shipping kits and detailed analytical procedures are available to our customers upon request.

Packaging

- Bulk
- Steel drums (205 kg net - US 215 kg net ROW)
- Plastic drums (219 kg net)
- IBC containers (1 045 kg net)

Storage

Stainless steel AISI 316 L is preferable for the storage of AdapT 100.

Copper and copper alloys should be avoided.

For bulk storage a nitrogen atmosphere is necessary to prevent the absorption of moisture and discoloration.

Comments

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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