



TECHNICAL DATA SHEET (TDS)

DIETHANOLAMINE (DEA 99%)

1. Product Identification

Parameter	Description
Product Name	Diethanolamine
Abbreviation	DEA
Chemical Name	2,2'-Iminodiethanol
CAS Number	111-42-2
EC Number	203-868-0
Molecular Formula	$C_4H_{11}NO_2$
Molecular Weight	105.14 g/mol
Product Grade	Industrial Grade – 99%
Chemical Family	Ethanolamines
Supplier	Basekim

2. Product Description

Diethanolamine (DEA) is a high-purity industrial chemical belonging to the ethanolamine family. It contains two hydroxyl groups and one secondary amine group, providing useful alkaline properties, water solubility, and chemical reactivity.

The product typically appears as a clear, colorless to pale yellow viscous liquid at temperatures above its melting point. At lower temperatures, it may form a white crystalline solid.

Industrial manufacturers use DEA in natural gas sweetening, surfactant production, chemical synthesis, textile processing, and specialty industrial formulations.

3. Technical Specifications

The following values represent a proposed reference specification for an industrial DEA 99% grade. Final guaranteed limits must be confirmed against the supplied manufacturer's documentation.

Parameter	Specification	Test Method
Appearance (30°C)	Clear liquid	Visual Inspection



Diethanolamine Purity	≥ 99.0 wt%	Gas Chromatography (GC)
Monoethanolamine Content	≤ 0.5 wt%	Gas Chromatography (GC)
Triethanolamine Content	≤ 0.3 wt%	Gas Chromatography (GC)
Water Content	≤ 0.2 wt%	ASTM E203
Color (APHA/Pt-Co)	≤ 20	ASTM D1209

4. Typical Physical and Chemical Properties

Property	Typical Value
Physical State	Viscous liquid or crystalline solid
Appearance	Colorless to pale yellow
Odor	Mild, ammonia-like
Molecular Weight	105.14 g/mol
Density (20°C)	~1.09 g/cm ³
Specific Gravity (30/20°C)	~1.093
Melting / Freezing Point	~28°C
Boiling Point	~269°C
Flash Point	~138°C (open cup)
Dynamic Viscosity (30°C)	~380 mPa·s
Water Solubility	Completely miscible
pH	Alkaline (concentration-dependent)
Vapor Pressure	Low at ambient temperature
Hygroscopic Nature	Absorbs moisture from the atmosphere

Typical properties provide general technical guidance and do not constitute guaranteed acceptance specifications.

5. Industrial Applications

Natural Gas Treatment

Industrial gas processing facilities use aqueous DEA solutions to absorb hydrogen sulfide (H₂S) and carbon dioxide (CO₂) from selected gas streams.

Surfactant Manufacturing

Chemical producers use the compound as an intermediate in the manufacture of selected surfactants and alkanolamides.



Detergent Production

Manufacturers use DEA-derived chemicals in selected industrial cleaning and detergent formulations.

Metalworking Fluids

The chemical serves as an intermediate for selected corrosion inhibitors, emulsifiers, and lubricant additives.

Textile Processing

Manufacturers use ethanolamine-based intermediates in certain textile auxiliaries and industrial chemical formulations.

Chemical Synthesis

DEA serves as a raw material for producing morpholine, specialty chemical derivatives, and selected industrial intermediates.

6. Packaging

Depending on supplier availability, order quantity, and transportation requirements, the product may be supplied in:

- Suitable chemical drums
- Intermediate Bulk Containers (IBC)
- ISO tanks
- Bulk chemical tankers

Packaging materials must be compatible with the product and the intended transport conditions.

7. Storage Conditions

Store the product in tightly closed, compatible containers in a designated chemical storage area.

Protect containers from contamination, excessive moisture, incompatible chemicals, and uncontrolled heating.



Because high-purity DEA has a melting point of approximately 28°C, the product may solidify under cool storage conditions.

Where liquid transfer is required, facilities should use approved temperature-controlled storage and handling systems.

Avoid contact with strong oxidizing agents, strong acids, and nitrosating substances.

8. Handling and Safety

- Use appropriate personal protective equipment.
- Avoid skin and eye contact.
- Provide suitable workplace ventilation.
- Prevent uncontrolled exposure to mist or aerosols.
- Follow approved transfer and spill-control procedures.
- Consult the current Safety Data Sheet before use.

The chemical can cause serious eye damage and presents additional health hazards. Industrial users must follow applicable workplace safety requirements.

9. Quality Control

Manufacturers and industrial buyers should verify product quality through appropriate laboratory testing.

Important quality-control parameters include:

- DEA assay
- Monoethanolamine content
- Triethanolamine content
- Water content
- Color
- Appearance
- Batch identification

A batch-specific Certificate of Analysis (COA) should confirm compliance with the agreed purchase specifications.



10. Shelf Life

The product's shelf life depends on storage conditions, packaging integrity, exposure to moisture, and supplier-specific stability data.

The manufacturer should confirm the applicable retest period or shelf-life recommendation.

For extended storage, buyers should inspect the packaging and verify relevant quality parameters before use.

11. Transportation

Transport the material in suitable, tightly closed chemical containers.

Protect the product from contamination and packaging damage.

Temperature conditions may affect its physical state during transportation.

The responsible shipper must confirm applicable transport classifications and documentation against the current Safety Data Sheet.

12. Technical Disclaimer

This Technical Data Sheet provides general reference information for industrial-grade Diethanolamine 99%.

The specifications and physical properties reflect representative commercial DEA grades and publicly available manufacturer data. They do not constitute guaranteed specifications for a particular Basekim shipment.

Actual product characteristics, impurity limits, packaging availability, and quality acceptance criteria must be confirmed through the manufacturer's official Technical Data Sheet and batch Certificate of Analysis.

Customers should evaluate product suitability for their intended applications before use.

Supplier: Basekim

Product: Diethanolamine (DEA 99%)



CAS Number: 111-42-2

Document: Technical Data Sheet (TDS)