



## MATERIAL SAFETY DATA SHEET (MSDS)

### DIETHANOLAMINE (DEA 99%)

#### SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

| Parameter           | Information                                                                              |
|---------------------|------------------------------------------------------------------------------------------|
| Product Name        | Diethanolamine                                                                           |
| Abbreviation        | DEA                                                                                      |
| Chemical Name       | 2,2'-Iminodiethanol                                                                      |
| CAS Number          | 111-42-2                                                                                 |
| EC Number           | 203-868-0                                                                                |
| Molecular Formula   | C <sub>4</sub> H <sub>11</sub> NO <sub>2</sub>                                           |
| Molecular Weight    | 105.14 g/mol                                                                             |
| Product Grade       | Industrial Grade, 99%                                                                    |
| Supplier            | Basekim                                                                                  |
| Recommended Uses    | Gas treatment, chemical intermediates, surfactant manufacturing, industrial formulations |
| Restrictions on Use | Follow applicable chemical and consumer-product regulations                              |
| Emergency Contact   | To be confirmed by supplier                                                              |

#### SECTION 2: HAZARDS IDENTIFICATION

##### GHS Classification (reference, subject to jurisdiction):

- Acute Toxicity, Oral – Category 4
- Skin Irritation – Category 2
- Serious Eye Damage – Category 1
- Reproductive Toxicity – Category 2
- Specific Target Organ Toxicity, Repeated Exposure – Category 2

**Signal Word:** DANGER

##### Hazard Pictograms:

- GHS05 – Corrosion
- GHS07 – Exclamation Mark
- GHS08 – Health Hazard

##### Hazard Statements:



- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
- H373: May cause damage to organs through prolonged or repeated exposure.

#### Precautionary Statements:

- P201: Obtain special instructions before use.
- P260: Do not breathe dust, mist, vapors, or spray.
- P264: Wash exposed skin thoroughly after handling.
- P270: Do not eat, drink, or smoke when using this product.
- P280: Wear protective gloves, protective clothing, eye protection, and face protection.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
- P302+P352: IF ON SKIN: Wash with plenty of water.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P310: Immediately call a POISON CENTER or doctor.
- P308+P313: IF exposed or concerned: Get medical advice or attention.
- P501: Dispose of contents and containers according to applicable regulations.

#### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

| Component          | CAS Number      | Concentration |
|--------------------|-----------------|---------------|
| Diethanolamine     | 111-42-2        | ≥ 99.0%       |
| Other Constituents | Grade-dependent | ≤ 1.0%        |

Actual composition and impurity limits must match the supplier's Certificate of Analysis.

#### SECTION 4: FIRST AID MEASURES

##### Inhalation:

Move the affected person to fresh air. Keep the person comfortable for breathing. Seek medical attention if symptoms develop or persist.

##### Skin Contact:



Immediately remove contaminated clothing. Wash the affected skin thoroughly with plenty of water. Obtain medical attention if irritation develops or continues.

**Eye Contact:**

Immediately rinse eyes cautiously with water for at least 15 minutes while holding the eyelids open. Remove contact lenses if present and easy to do.

Seek immediate medical attention because exposure can cause serious eye damage.

**Ingestion:**

Rinse the mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Contact a poison center or medical professional immediately for advice.

**Most Important Symptoms:**

- Skin irritation
- Serious eye injury
- Gastrointestinal discomfort after ingestion
- Potential liver, kidney, and blood effects after repeated exposure

**SECTION 5: FIREFIGHTING MEASURES****Suitable Extinguishing Media:**

- Water spray
- Alcohol-resistant foam
- Dry chemical powder
- Carbon dioxide (CO<sub>2</sub>)

**Specific Hazards:**

The product is combustible under sufficiently high-temperature conditions.

Thermal decomposition or combustion may generate hazardous gases, including carbon monoxide, carbon dioxide, and nitrogen oxides.

**Protective Equipment:**



Firefighters should wear self-contained breathing apparatus and appropriate protective clothing.

### **Firefighting Recommendations:**

Use water spray to cool exposed containers. Prevent contaminated firefighting water from entering drainage systems and natural waterways.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions:**

- Restrict access to the affected area.
- Ensure adequate ventilation.
- Avoid contact with skin and eyes.
- Wear appropriate protective equipment.
- Avoid inhaling mist or aerosols.

### **Environmental Precautions:**

Prevent releases into drains, soil, surface water, and groundwater.

### **Spill Cleanup:**

Contain the spill if it is safe to do so.

Absorb liquid material using suitable inert absorbent.

Transfer collected material into compatible, labeled waste containers.

Clean the affected surface using an appropriate procedure while preventing uncontrolled discharge.

Dispose of contaminated materials according to applicable waste regulations.

## **SECTION 7: HANDLING AND STORAGE**

### **Handling Precautions:**

Use appropriate ventilation and industrial hygiene procedures.



Avoid skin and eye contact. Prevent mist generation and unnecessary exposure.

Do not eat, drink, or smoke while handling the chemical.

Wash hands and exposed skin after use.

#### **Storage Conditions:**

- Store in tightly closed, compatible containers.
- Keep containers in a designated chemical storage area.
- Protect against contamination and incompatible materials.
- Avoid excessive heat.
- Protect against moisture exposure when product quality requires it.
- Follow the manufacturer's temperature recommendations.

#### **Special Storage Consideration:**

High-purity material may solidify below approximately 28°C.

Facilities should use suitable temperature-controlled equipment when liquid handling is required.

### **SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**

#### **Occupational Exposure Limits:**

Applicable exposure limits depend on the country and regulatory authority. Facilities must consult current local occupational exposure regulations.

#### **Engineering Controls:**

Provide adequate general ventilation or local exhaust ventilation when processes can generate mist or vapor.

#### **Personal Protective Equipment:**

| Protection Type | Recommendation                                               |
|-----------------|--------------------------------------------------------------|
| Eye Protection  | Chemical splash goggles                                      |
| Face Protection | Face shield where splashing is possible                      |
| Hand Protection | Chemically resistant gloves selected using breakthrough data |



|                        |                                                                      |
|------------------------|----------------------------------------------------------------------|
| Skin Protection        | Suitable protective clothing                                         |
| Respiratory Protection | Approved respiratory protection when exposure assessment requires it |
| Workplace Hygiene      | Emergency eyewash and safety shower near handling areas              |

Respiratory protection and glove material must match the actual exposure conditions.

#### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| Property                 | Typical Value                         |
|--------------------------|---------------------------------------|
| Physical State           | Viscous liquid or crystalline solid   |
| Appearance               | Colorless to pale yellow              |
| Odor                     | Mild, ammonia-like                    |
| Molecular Formula        | $C_4H_{11}NO_2$                       |
| Molecular Weight         | 105.14 g/mol                          |
| Melting Point            | ~28°C                                 |
| Boiling Point            | ~269–271°C                            |
| Density at 20°C          | ~1.09 g/cm <sup>3</sup>               |
| Flash Point              | ~138°C (closed cup, method-dependent) |
| Solubility in Water      | Completely miscible                   |
| pH                       | Alkaline (concentration-dependent)    |
| Vapor Pressure           | Low at ambient temperature            |
| Viscosity                | Temperature-dependent                 |
| Flammability             | Combustible when sufficiently heated  |
| Autoignition Temperature | Confirm against grade-specific SDS    |

Values may vary according to the analytical method and supplied grade.

#### SECTION 10: STABILITY AND REACTIVITY

##### Reactivity:

Reacts with certain acids and incompatible chemical substances.

##### Chemical Stability:

Stable under recommended storage and handling conditions.

**Possibility of Hazardous Reactions:**

Reactions with incompatible substances may generate heat.

Contact with nitrosating agents may produce hazardous N-nitroso compounds.

**Conditions to Avoid:**

- Excessive heating
- Uncontrolled chemical reactions
- Contact with incompatible materials
- Contamination

**Incompatible Materials:**

- Strong oxidizing agents
- Strong acids
- Nitrosating agents

**Hazardous Decomposition Products:**

Thermal decomposition may generate carbon monoxide, carbon dioxide, nitrogen oxides, and other hazardous fumes.

**SECTION 11: TOXICOLOGICAL INFORMATION****Likely Routes of Exposure:**

- Inhalation
- Skin contact
- Eye contact
- Ingestion

**Acute Toxicity:**

Harmful if swallowed.

**Skin Irritation:**

Causes skin irritation.

**Eye Damage:**

Causes serious eye damage.

**Repeated Exposure:**

Prolonged or repeated exposure may affect the liver, kidneys, and blood.

**Reproductive Toxicity:**

Suspected of damaging fertility or the unborn child under certain GHS regulatory classifications.

**Carcinogenicity:**

IARC classifies Diethanolamine as Group 2B, possibly carcinogenic to humans.

**Additional Information:**

Toxicological effects depend on exposure route, concentration, duration, and working conditions.

Consult the official grade-specific SDS for detailed toxicological test results.

**SECTION 12: ECOLOGICAL INFORMATION****Ecotoxicity:**

The chemical may adversely affect aquatic organisms. Some regulatory classifications identify harmful long-term aquatic effects.

**Persistence and Degradability:**

Biodegradability depends on environmental conditions. Consult available test data for the specific material.

**Bioaccumulative Potential:**

Significant bioaccumulation is generally not expected based on its chemical characteristics.

**Mobility in Soil:**

High water solubility may increase mobility in aquatic environments.

**Environmental Precautions:**

Avoid uncontrolled discharge into rivers, lakes, wastewater systems, and soil.

**SECTION 13: DISPOSAL CONSIDERATIONS**

Dispose of chemical waste through an authorized industrial waste management facility.

Do not discharge concentrated product into municipal drainage systems or natural waterways.

Follow all applicable national and local environmental regulations.

**Contaminated Packaging:**

Do not reuse contaminated containers without proper decontamination and authorization.

Dispose of or recycle packaging through approved chemical waste management procedures.

**SECTION 14: TRANSPORT INFORMATION**

Transport classification requires confirmation against the actual product SDS and applicable transport regulations.

| Transport Information | Reference                                      |
|-----------------------|------------------------------------------------|
| Product               | Diethanolamine                                 |
| CAS Number            | 111-42-2                                       |
| ADR/RID               | Generally not regulated as dangerous goods     |
| IMDG                  | Generally not regulated as dangerous goods     |
| IATA                  | Generally not regulated as dangerous goods     |
| UN Number             | Not assigned where not regulated               |
| Packing Group         | Not applicable where not regulated             |
| Marine Pollutant      | Generally not classified as a marine pollutant |

**Transport Precautions:**

Use compatible, tightly closed containers.

Protect packages from damage, contamination, and inappropriate temperatures.

Check the latest destination-specific transport requirements before shipment.

**SECTION 15: REGULATORY INFORMATION****Chemical Identification:**

- CAS Number: 111-42-2
- EC Number: 203-868-0
- Index Number: 603-071-00-1

**Regulatory Frameworks:**

Depending on the destination market, relevant requirements may include:

- EU REACH Regulation
- EU CLP Regulation
- OSHA Hazard Communication Standard
- GHS chemical classification and labeling
- National occupational safety regulations
- Applicable chemical inventory requirements

Importers and industrial users must verify current regulations, exposure limits, product registration obligations, and any application restrictions in their respective countries.

**SECTION 16: OTHER INFORMATION**

**Product:** Diethanolamine (DEA 99%)

**CAS Number:** 111-42-2

**Document Type:** Material Safety Data Sheet (MSDS/SDS)

**Supplier:** Basekim

**Intended Application:** Industrial and professional chemical use.



### Abbreviations:

- DEA: Diethanolamine
- GHS: Globally Harmonized System
- SDS: Safety Data Sheet
- MSDS: Material Safety Data Sheet
- TDS: Technical Data Sheet
- COA: Certificate of Analysis
- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- IMDG: International Maritime Dangerous Goods Code
- IATA: International Air Transport Association