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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product: Diethanolamine (DEA)	**Revision date:** 2026-10-29	**Version:** 1.0	**Brand:** Richest

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product name	Diethanolamine (DEA)
Synonyms	DEA; 2,2'-Iminodiethanol; Bis(2-hydroxyethyl)amine
CAS No.	111-42-2
EC No.	203-868-0
Molecular formula	C4H11NO2
Molecular weight	105.14 g/mol
Relevant identified uses	Intermediate for surfactants, detergents, cosmetics, textile auxiliaries, gas treating and metalworking fluids
Uses advised against	None
Company	Richest Group Ltd.
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SECTION 2: Hazards identification

GHS Classification	Acute Tox. 4 (Oral); Skin Irrit. 2; Eye Dam. 1; Repr. 2; STOT RE 2 (Kidney, Liver, Blood); Aquatic Chronic 3
Pictogram(s)	GHS05, GHS07, GHS08
Signal word	Danger
Hazard statement(s)	H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H361fd Suspected of damaging fertility. Suspected of damaging the unborn

Precautionary statement(s)	P273; P280; P301+P312; P302+P352; P305+P351+P338; P308+P313
Other hazards	None known.

SECTION 3: Composition/information on ingredients

Component	Diethanolamine
CAS No.	111-42-2
EC No.	203-868-0
Classification	Acute Tox. 4 (Oral); Skin Irrit. 2; Eye Dam. 1; Repr. 2; STOT RE 2 (Kidney, Liver, Blood); Aquatic Chronic 3
Concentration (%)	≤100 %

SECTION 4: First aid measures

If inhaled	Remove person to fresh air. Call a physician.
In case of skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.
In case of eye contact	Rinse out with plenty of water. Immediately call an ophthalmologist. Remove contact lenses.
If swallowed	Make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects	The most important known symptoms and effects are described in section 2.2 and section 11.
Indication of any immediate medical attention	Treat symptomatically.

SECTION 5: Firefighting measures

Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical, carbon dioxide (CO2)
Unsuitable extinguishing media	None (no limitations of extinguishing agents are given)
Special hazards arising from the chemical	Carbon oxides, nitrogen oxides. Combustible when heated above the flash point.
Advice for firefighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Do not breathe vapors/aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
Environmental precautions	Do not let product enter drains.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Take up with liquid-absorbent material. Dispose of properly. Clean up affected area.

SECTION 7: Handling and storage

Precautions for safe handling	Avoid contact with skin and eyes. Do not breathe vapors/aerosols. Observe the precautionary statements in section 2.2.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Recommended storage temperature: 2-8 °C. Storage class (TRGS 510): 10.

SECTION 8: Exposure controls/personal protection

Occupational exposure limit values	ACGIH TLV: 1 mg/m³ TWA (inhalable fraction and vapor, skin); NIOSH REL: 3 ppm (15 mg/m³) TWA
Biological limit values	No biological exposure index (BEI) established.
Appropriate engineering controls	Ensure adequate ventilation. Change contaminated clothing; wash hands and face after working with substance.
Eye/face protection	Tightly fitting safety goggles (tested and approved under NIOSH (US) or EN 166 (EU))
Skin protection	Handle with chemical-resistant gloves
Body protection	Protective clothing
Respiratory protection	Required when vapours/aerosols are generated
Thermal hazards	No specific thermal hazards under normal conditions of use.

SECTION 9: Physical and chemical properties

Physical state	Liquid (below melting point: solid)
Colour	Colorless
Odour	Ammoniacal
Melting point / freezing point	27 °C
Boiling point or initial boiling point and boiling range	217 °C at 200 hPa (268-269 °C at 1,013 hPa)

Flammability	Combustible when heated above the flash point; not classified as flammable liquid
Lower and upper explosion limit / flammability limit	Lower explosion limit: 1.6 % (V); Upper explosion limit: 10.6 % (V)
Flash point	138 °C - closed cup
Auto-ignition temperature	355 °C
Decomposition temperature	No data available
pH	11.0-12 (105 g/l, 25 °C)
Kinematic viscosity	ca. 358 mm2/s at 30 °C (dynamic viscosity 390.9 mPa.s)
Solubility	Water: completely miscible (20 °C)
Partition coefficient n-octanol/water	log Pow: -2.46
Vapour pressure	1 hPa at 108 °C
Density and/or relative density	1.097 g/cm3 at 20 °C
Relative vapour density	3.63 (Air = 1.0)
Particle characteristics	Not applicable (liquid)

SECTION 10: Stability and reactivity

Reactivity	The solution in water is a medium-strong base
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Decomposes on burning producing toxic fumes; reacts violently with strong oxidants and strong acids; attacks copper, zinc, aluminium and their alloys (ICSC)
Conditions to avoid	Heat.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon oxides, nitrogen oxides (in the event of fire)

SECTION 11: Toxicological information

Acute toxicity - Oral / Inhalation / Dermal	LD50 Oral - Rat - 1,600 mg/kg; LD50 Dermal - Rabbit - 12,200 mg/kg
Skin corrosion/irritation	Rabbit - irritating to skin
Serious eye damage/irritation	Rabbit - causes serious eye damage

Respiratory or skin sensitization	Maximization Test - Guinea pig - negative
Germ cell mutagenicity	Not classified (based on available data)
Carcinogenicity	IARC Group 2B (possibly carcinogenic to humans)
Reproductive toxicity	Suspected of damaging fertility. Suspected of damaging the unborn child.
STOT - single exposure	Not classified (based on available data)
STOT - repeated exposure	May cause damage to organs (Kidney, Liver, Blood) through prolonged or repeated exposure.
Aspiration hazard	Not classified (based on available data)

SECTION 12: Ecological information

Toxicity to fish / daphnia / algae	Fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 460 mg/l - 96 h; Daphnia: EC50 - Ceriodaphnia dubia - 30.1 mg/l - 48 h; Algae: ErC50 - 9.5 mg/l - 96 h
Persistence and degradability	Readily biodegradable (93 %, 28 d)
Bioaccumulative potential	log Pow: -2.46. Bioaccumulation is not expected.
Mobility in soil	High mobility in soil expected (very high water solubility, low log Koc)
Other adverse effects	None known

SECTION 13: Disposal considerations

Product disposal methods	Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging	Dispose of contaminated packaging in accordance with local regulations.

SECTION 14: Transport information

UN Number (ADR/RID, IMDG, IATA)	Not regulated as dangerous goods
UN Proper Shipping Name	Not dangerous goods (ADR/RID, IMDG, IATA)
Transport hazard class(es)	Not regulated
Packing group	Not regulated
Environmental hazards (Marine pollutant)	No (not a marine pollutant)
Special precautions for user	No special precautions required during transport.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product	EINECS: Listed (203-868-0) / TSCA: Listed / IECSC: Listed / Catalogue of Hazardous Chemicals (China): Listed

SECTION 16: Other information

Full text of H-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. H412 Harmful to aquatic life with long lasting effects.
Revision date	2026-10-29
Version	1.0

Abbreviations and acronyms: CAS: Chemical Abstracts Service; EC: European Commission; EINECS: European Inventory of Existing Commercial Chemical Substances; ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road; RID: Regulation concerning the International Carriage of Dangerous Goods by Rail; IMDG: International Maritime Dangerous Goods; IATA: International Air Transport Association; TWA: Time Weighted Average; STEL: Short Term Exposure Limit; LD50: Lethal Dose 50%; LC50: Lethal Concentration 50%; EC50: Effective Concentration 50%; PBT: Persistent, Bioaccumulative and Toxic; vPvB: very Persistent and very Bioaccumulative; SDS: Safety Data Sheet.

References: ECHA - European Chemicals Agency, https://echa.europa.eu/; IPCS - International Chemical Safety Cards (ICSC), http://www.ilo.org/; HSDB - Hazardous Substances Data Bank; eChemPortal - OECD Global Portal to Information on Chemical Substances; ERG - Emergency Response Guidebook by U.S. DOT.

Disclaimer: The information in this SDS is only applicable to the specified product and is provided in good faith. It is based on the knowledge available to Richest Group Ltd. at the date of issue and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute any guarantee of the properties of the product. Richest Group Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product.