



SAFETY DATA SHEET
METHYLDIETHANOLAMINE (MDEA)
REVISION 4, DATE 02 JAN 23

1. IDENTIFICATION

Product Name	Methyldiethanolamine (MDEA)
Other Names	2,2'-(Methylimino)bis[ethanol; Ethanol, 2,2'-(methylimino)bis-
Uses	Chemical intermediate.
Chemical Family	No Data Available
Chemical Formula	C ₅ H ₁₃ NO ₂
Chemical Name	N-Methyldiethanolamine
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

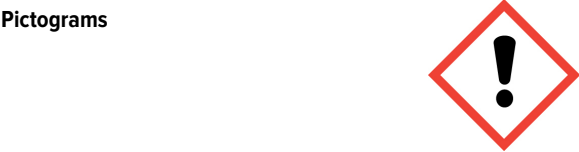
Not Scheduled



Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Serious Eye Damage/Irritation - Category 2A



Signal Word Warning

Hazard Statements **H319** Causes serious eye irritation.

Precautionary Statements

Prevention	P280	Wear eye protection/face protection.
	P264	Wash skin thoroughly after handling.
Response	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications Health Hazards **6.4A** Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Methyldiethanolamine	C5H13NO2	105-59-9	>=60 - <=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth. Do not induce vomiting without medical advice. Get medical advice/attention if you feel unwell. Never give anything by mouth to an unconscious person.

Eye IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Skin IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation

occurs, get medical advice/attention.

Inhaled

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.

Advice to Doctor

Treat symptomatically. Show this safety data sheet (SDS) to the doctor in attendance.

Medical Conditions Aggravated by Exposure No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Combustible liquid; may burn but does not ignite readily.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO ₂), alcohol-resistant foam or water spray for extinction - Do not use water jet.
Fire and Explosion Hazard	Containers may explode when heated.
Hazardous Products of Combustion	Fire/thermal decomposition may produce irritating and/or toxic fumes, including Nitrogen oxides (NO _x), Carbon monoxide, Carbon dioxide.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	138 °C [Pensky-Martens Closed Cup]
Lower Explosion Limit	0.9 %
Upper Explosion Limit	8.4 %
Auto Ignition Temperature	280 °C
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Avoid breathing vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Absorb with earth, sand or other non-combustible material and transfer to a container for disposal (see SECTION 13). *Do not flush into surface water or sanitary sewer system.
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
Decontamination	No information available.
Environmental Precautionary Measures	Prevent entry into drains and waterways. Local authorities should be advised if significant spillages cannot be contained.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing mist/vapours/spray and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Combustible liquid: Keep away from heat and sources of ignition - No smoking. Take precautionary measures against static discharge.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat

and sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10).

Container

Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Contains no substances with occupational exposure limit values.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Personal Protection Equipment	<ul style="list-style-type: none">- Respiratory protection: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Recommended: Organic vapour type (refer to AS/NZS 1715 & 1716).- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side-shields; Face-shield.- Hand protection: Handle with gloves. Recommended: Rubber gloves; Neoprene gloves.- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Complete suit protecting against chemicals.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash it before reuse. Remove contaminated clothing and protective equipment before entering eating areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	Ammoniacal
Colour	Colourless
pH	11.5 10 % (20 °C)
Vapour Pressure	0.0031 hPa (@ 20 °C)
Relative Vapour Density	4 Air = 1
Boiling Point	243.3 °C
Melting Point	No Data Available
Freezing Point	-21.3 °C
Solubility	Completely soluble in water
Specific Gravity	No Data Available
Flash Point	138 °C [Pensky-Martens Closed Cup]
Auto Ignition Temp	280 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.04 g/cm ³
Specific Heat	No Data Available
Molecular Weight	119.16 g/mol
Net Propellant Weight	No Data Available

Octanol Water Coefficient	Log Pow: -1.16 (23 °C)
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	99.05 mm ² /s (@ No Data Available)
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Combustible liquid; may burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire/thermal decomposition may produce irritating and/or toxic fumes, including Nitrogen oxides (NO _x), Carbon monoxide, Carbon dioxide.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Keep away from heat and sources of ignition - No smoking. Take precautionary measures against static discharge.
Materials to Avoid	Incompatible/reactive with strong acids, oxidising agents, isocyanates.
Hazardous Decomposition Products	Fire/thermal decomposition may produce irritating and/or toxic fumes, including Nitrogen oxides (NO _x), Carbon monoxide, Carbon dioxide.
Hazardous Polymerisation	Does not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none">- Acute toxicity: Not classified based on available information. Ingestion may cause gastrointestinal irritation, nausea, diarrhoea, vomiting.- Skin corrosion/irritation: Not classified based on available information. COMPONENT: Methyldiethanolamine: No skin irritation (Rabbit).- Eye damage/irritation: Cause serious eye irritation. COMPONENT: Methyldiethanolamine: Irritating (Rabbit).- Respiratory/skin sensitisation: Not classified based on available information. COMPONENT: Methyldiethanolamine: Non-sensitising (Guinea pig, skin).- Germ cell mutagenicity: Not classified based on available information. COMPONENT: Methyldiethanolamine: Did not show mutagenic effects in animal experiments.- Carcinogenicity: Not classified based on available information. COMPONENT: Methyldiethanolamine: Animal testing did not show any carcinogenic effects.- Reproductive toxicity: Not classified based on available information. COMPONENT: Methyldiethanolamine: No toxicity to reproduction; Did not show teratogenic effects in animal experiments.- STOT (single exposure): Not classified based on available information.
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- STOT (repeated exposure): Not classified based on available information.
- Aspiration toxicity: Not classified based on available information.

Acute**Ingestion**

Acute toxicity (Oral):
COMPONENT: Methyldiethanolamine:
- LD50, Rat: 4,680 mg/kg [Supplier's SDS].

Other

Acute toxicity (Dermal):
COMPONENT: Methyldiethanolamine:
- LD50, Rabbit: >2,000 mg/kg [Supplier's SDS].

Chronic**Other**

Repeated dose toxicity (Dermal):
COMPONENT: Methyldiethanolamine:
- NOAEL, Rat: 750 mg/kg (90 days) [Supplier's SDS].

Carcinogen Category

None

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Aquatic toxicity:
COMPONENT: Methyldiethanolamine:
- LC50, Fish (Leuciscus idus): 1,466 mg/L (96 h) [Supplier's SDS].
- EC50, Crustacea (Daphnia magna): 233 mg/L (48 h) [Supplier's SDS].
- EC50, Algae/aquatic plants (Pseudokirchneriella subcapitata): >100 mg/L (72 h) [Supplier's SDS].

Persistence/Degradability

COMPONENT: Methyldiethanolamine:
- Readily biodegradable (96 %, 18 days).

Mobility

Mobility in soil:
COMPONENT: Methyldiethanolamine:
- Koc: 42
- log Koc: 1.62

Environmental Fate

Prevent entry into drains and waterways.

Bioaccumulation Potential

COMPONENT: Methyldiethanolamine:
- Bioconcentration factor (BCF): 0.7 - 3.2
- log Pow: -1.08 (25 °C)

Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS**General Information**

Dispose of contents/container in accordance with local/regional/national regulations. Waste must be classified and labelled prior to recycling or disposal.

Special Precautions for Land Fill

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name

Methyldiethanolamine (MDEA)

SAFETY DATA SHEET METHYLDIETHANOLAMINE (MDEA) REVISION 4, DATE 02 JAN 23

Class	C2 Combustible Liquids - Flash Point >93°C, Closed Cup, Not Excluded Flammable
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Methyldiethanolamine (MDEA)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Methyldiethanolamine (MDEA)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Methyldiethanolamine (MDEA)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Methyldiethanolamine (MDEA)
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Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Methyldiethanolamine (MDEA)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002503 HSR003155 (Revoked)
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National/Regional Inventories

Australia (AIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Listed

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Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Listed
Korea (KECI)	Listed
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Listed
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Listed
USA (TSCA)	Listed

16. OTHER INFORMATION

Related Product Codes	MEDIET1000, MEDIET1001, MEDIET1002, MEDIET1003, MEDIET1004, MEDIET1100, MEDIET1101, MEDIET1200, MEDIET1300, MEDIET1400, MEDIET1401, MEDIET1420, MEDIET2000, MEDIET3000, MEDIET4000, MEDIET5000, MEDIET6000, MEDIET6001
Revision	4
Revision Date	02 Jan 2023
Key/Legend	<p>< Less Than > Greater Than</p> <p>AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Fahrenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m³ Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m³ Cubic Metre mbar Millibar</p>

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight