

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Methyldiethanolamine (MDEA)</b>
<b>Other Names</b>	2,2'-(Methylimino)bis[ethanol; Ethanol, 2,2'-(methylimino)bis-
<b>Uses</b>	Chemical intermediate.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	C5H13NO2
<b>Chemical Name</b>	N-Methyldiethanolamine
<b>Product Description</b>	No Data Available

### Contact Details of the Supplier of this Safety Data Sheet

<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
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.*


<b>Organisation</b>	<b>Location</b>	<b>Telephone</b>
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

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)		
<b>Hazard Categories</b>	Serious Eye Damage/Irritation - Category 2A		
<b>Pictograms</b>			
<b>Signal Word</b>	Warning		
<b>Hazard Statements</b>	<b>H319</b>	Causes serious eye irritation.	
<b>Precautionary Statements</b>	Prevention	<b>P280</b>	Wear eye protection/face protection.
		<b>P264</b>	Wash skin thoroughly after handling.
	Response	<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		<b>P337 + P313</b>	If eye irritation persists: Get medical advice.

## National Transport Commission (Australia)

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

<b>Dangerous Goods Classification</b>	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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## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>HSNO Classifications</b>	Health Hazards <b>6.4A</b>	Substances that are irritating to the eye
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## 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

<b>Swallowed</b>	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.
<b>Eye</b>	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.
<b>Skin</b>	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.

<b>Inhaled</b>	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.
<b>Advice to Doctor</b>	Treat symptomatically. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

## 5. FIRE FIGHTING MEASURES

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

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	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.
<b>Clean Up Procedures</b>	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.
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
<b>Decontamination</b>	No information available.
<b>Environmental Precautionary Measures</b>	Prevent entry into drains and waterways. Local authorities should be advised if significant spillages cannot be contained.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
<b>Personal Precautionary Measures</b>	Use personal protective equipment as required (see SECTION 8).

## 7. HANDLING AND STORAGE

<b>Handling</b>	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.
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Keep away from heat

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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

<b>General</b>	Contains no substances with occupational exposure limit values.
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	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.
<b>Personal Protection Equipment</b>	<ul style="list-style-type: none"><li>- 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 &amp; 1716).</li><li>- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side-shields; Face-shield.</li><li>- Hand protection: Handle with gloves. Recommended: Rubber gloves; Neoprene gloves.</li><li>- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Complete suit protecting against chemicals.</li></ul>
<b>Special Hazards Precautions</b>	No information available.
<b>Work Hygienic Practices</b>	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

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

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

## 10. STABILITY AND REACTIVITY

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

## 11. TOXICOLOGICAL INFORMATION

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

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**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)

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

<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No
<b>Comments</b>	NON-DANGEROUS GOODS: Not regulated for SEA transport.

**Air Transport**

IATA DGR

<b>Proper Shipping Name</b>	Methyldiethanolamine (MDEA)
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>Comments</b>	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)

<b>Dangerous Goods Classification</b>	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**

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	Not Scheduled

**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	HSR002503 HSR003155 (Revoked)
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**National/Regional Inventories**

<b>Australia (AIC)</b>	Listed
<b>Canada (DSL)</b>	Listed
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Listed



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

**16. OTHER INFORMATION**

<b>Related Product Codes</b>	MEDIET1000, MEDIET1001, MEDIET1002, MEDIET1003, MEDIET1004, MEDIET1100, MEDIET1101, MEDIET1200, MEDIET1300, MEDIET1400, MEDIET1401, MEDIET1420, MEDIET2000, MEDIET3000, MEDIET4000, MEDIET5000, MEDIET6000, MEDIET6001
<b>Revision</b>	4
<b>Revision Date</b>	02 Jan 2023
<b>Key/Legend</b>	<p>&lt; Less Than                  &gt; Greater Than  <b>AICS</b> Australian Inventory of Chemical Substances  <b>atm</b> Atmosphere  <b>CAS</b> Chemical Abstracts Service (Registry Number)  <b>cm<sup>2</sup></b> Square Centimetres  <b>CO<sub>2</sub></b> Carbon Dioxide  <b>COD</b> Chemical Oxygen Demand  <b>deg C (°C)</b> Degrees Celcius  <b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand  <b>deg F (°F)</b> Degrees Farenheit  <b>g</b> Grams  <b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre  <b>g/l</b> Grams per Litre  <b>HSNO</b> Hazardous Substance and New Organism  <b>IDLH</b> Immediately Dangerous to Life and Health  <b>immiscible</b> Liquids are insoluable in each other.  <b>inHg</b> Inch of Mercury  <b>inH<sub>2</sub>O</b> Inch of Water  <b>K</b> Kelvin  <b>kg</b> Kilogram  <b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre  <b>lb</b> Pound  <b>LC50</b> 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.  <b>LD50</b> 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.  <b>ltr or L</b> Litre  <b>m<sup>3</sup></b> Cubic Metre  <b>mbar</b> Millibar</p>

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

**mg** Milligram

**mg/24H** Milligrams per 24 Hours

**mg/kg** Milligrams per Kilogram

**mg/m<sup>3</sup>** Milligrams per Cubic Metre

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

**mm** Millimetre

**mmH<sub>2</sub>O** 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