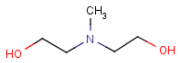
SAFETY DATA SHEET

1. IDENTIFICATION OF PRODUCT AND COMPANY

1.1. Identification of the product:

Methyldiethanolamine

Reach Registration number: 01-2119488970-24-0003
EC number: 203-312-7
EC name: 2,2'-methyliminodiethanol
CAS number: 105-59-9
CAS name: Ethanol, 2,2'-(methylimino)bis-
IUPAC name: 2,2'-(methylimino)diethanol
Molecular formula: C5H13NO2
Molecular weight: 119.1622
Acronym: MDEA
Structural formula:



1.2. Use of the product:

IU number	*Identified Use (IU) name*	*Sector of use (SU)*
	Uses by workers in industrial settings	
1	Manufacture of the MDEA compound.	3
2	Formulation of preparations.	10
3	Application as intermediate in industrial settings.	9
4	Laboratory work with MDEA .	22
5	Use in gas treatment.	3,8
6	Industrial and professional use in lubricants and metal working fluids.	3,22
7	Industrial use as processing aid (catalyst) in polymerisation reactions.	3
9	Industrial use as additive in coatings.	3
	Uses by professional workers	
4	Laboratory work with MDEA.	22
6	Industrial and professional use in lubricants and metal working fluids.	3,22
8	Professional use as processing aid (catalyst) in polymerisation reactions.	12,19
10	Professional use as additive in coatings.	22
11	Professional use as additive in concrete and cement.	0

1.3. Identification of the company:

Company: Himsorbent JSC.
Address: 606000, Russian Federation, Nizhny Novgorod region, Dzerzhinsk, East industrial area Chimmash, 7 km. + 500 m. of East road, building 175.

1.4. Emergency Contact:

(8313) 27-25-65 7:30am – 4:15pm
(8313) 27-25-80 round-the-clock
Fax: (8313) 27-25-72

1.5. Person responsible for placement of the product in the market within the European Community:

Independent Petroleum Distribution SA
Andrey Bachev
118, Drève Richelle postal code : 1410, Waterloo , Belgium
Phone: +3223514221
+41417402427
Fax: +41417402494
mail to: ab@ipd-sa.com

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance:

2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]:

Hazard classes and Hazard categories	Hazard Statements
Irritating to eyes: Cat. 2	H319: Causes serious eye irritation.

2.1.2 Classification according to 67/548/EEC or 1999/45/EC:

Xi; R36 Irritant; Irritating to eyes.

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]:
Product identifier:
Substances: Methyldiethanolamine.
Index-номер*:* 603-079-00-5.
EC №: 203-312-7.
Hazard components for labeling: Methyldiethanolamine.

Hazard pictograms:

Signal word: Warning.

Hazard statements:
H319: Causes serious eye irritation.

Precautionary Statements (Prevention):
P264: Wash with plenty of water and soap thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements (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/attention.

3. INFORMATION ON INGREDIENTS

Name	CAS №	EC №	Index №	Reach Registration number	Mass concent, %	Classification according		
						67/548/EEC	Regulation (EC) No 1272/2008 [CLP]	
Methyldie-thanolamine	105-59-9	203-312-7	603-079-00-5	01-2119488970-24-0003	≥ 99	Xi, R36	Irritating to eyes: Cat. 2	H319

Hazard symbols deciphering is given in section 16.

4. FIRST-AID MEASURES

4.1 Description of first aid measures

4.1.1 General informations:
Remove contaminated clothing.

4.1.2 Following inhaled:	Keep patient calm, remove to fresh air, seek medical attention.
4.1.3 Following skin contact:	Wash thoroughly with soap and water.
4.1.4 Following eye contact:	Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.
4.1.5 Following ingestion:	Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.
4.1.6 Notes for the doctor:	Do not induce vomiting.
4.2 Most important symptoms and effects, both acute and delayed	Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and in section 11. Further symptoms are possible.
4.3 Indication of any immediate medical attention and special treatment needed	Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media:
Suitable extinguishing media: Water spray, dry powder, alcohol-resistant foam, carbon dioxide.
Unsuitable extinguishing media: ----

5.2 Special hazards arising from the substance or mixture:
Hazardous combustion products: Products of combustion are carbon oxides and nitrogen oxides, blood poison.

5.3 Advice for fire-fighters:
Wear self-contained breathing apparatus and chemical-protective clothing.
Do not come close to burning containers. Cool containers with water from maximum distance.

5.4 Additional information:
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel:

Protective equipment:	Avoid inhalation. Avoid contact with the skin, eyes and clothing.
Emergency procedures:	Removal of ignition sources, provision of sufficient ventilation; the need to evacuate the danger area.

6.1.2 For emergency responders:
*Personal protective equipment: S*elf-contained breathing apparatus and chemical-protective clothing.

6.2. Environmental precautions:
Do not discharge into drains/surface waters/groundwater.

6.3. Methods for cleaning up or taking up:
For large amounts: Pump off product.
For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

7.1.1 Protective measures:

Fire preventions:	Keep away from sources of ignition - No smoking.
Aerosol preventions:	Ensure thorough ventilation of store and work areas.
Environmental precautions:	Hermeticity of equipment, product storage tanks, containers.

7.1.2 Advice on general occupational hygiene:
Not to eat, drink and smoke in work areas. Wash hands after use.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities:
Segregate from acids and acid forming substances.
Further information on storage conditions: Containers should be stored tightly sealed in a dry place.
Storage duration: 12 Months.
Data on the storage life specified in the safety data are not a contractual guarantee of the properties of the product.

7.3 Specific end uses:
For a substance designed for a specific end use(s), recommendations attached in the exposure scenarios (exposure scenarios for identified uses described in Section 1.2 are included of Annex of SDS).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ensure preliminary and periodic medical examinations

The applicable occupational exposure limits and necessary risk management measures attached in the exposure scenarios (information given for the identified uses in the CSR and the ES showing control of risk from the CSR set out in the annex to the SDS).

8.1. DNEL/PNEC-values:

DNEL -values:

DNEL		**Exposure route**	**Exposure frequency**
for workers	**for the general population**		
19 mg/kg bw/day	9.4 mg/kg bw/day	Dermal	Long-term - systemic effects
26 mg/m³	6.5 mg/m³	Inhalation	Long-term - systemic effects
-	1.9 mg/kg bw/day	Oral	Long-term - systemic effects

Relevant DNELs for the methyldiethanolamine given in the exposure scenarios of the chemical safety report set out in the annex to the SDS. Relevant DNELs for the diethanolamine given in the exposure scenarios of the chemical safety report set out in the annex to the SDS.

PNEC-values:

Compartments	**PNEC**
PNEC water	
PNEC aqua (freshwater):	0.1 mg/L
PNEC aqua (marine water):	0.0125 mg/L
PNEC aqua (intermittent releases):	1 mg/L
PNEC sediment	
PNEC sediment (freshwater):	0.89 mg/kg sediment dw
PNEC sediment (marine water):	0.111 mg/kg sediment dw
PNEC soil	
PNEC soil:	0.119 mg/kg soil dw
PNEC sewage treatment plant	
PNEC STP:	10 mg/L

Relevant PNECs for the methyldiethanolamine given in the exposure scenarios of the chemical safety report set out in the annex to the SDS.

8.2. Exposure controls:
The full range of specific risk management measures to be taken during use in order to minimise worker and environmental exposure.

8.2.1 Appropriate engineering controls:
Hermeticity of equipment, product storage tanks, containers.
Ensure thorough ventilation of store and work areas.
Periodically control the content of harmful substances in the air of the working zone.
Handle in accordance with good industrial hygiene and safety practice.

8.2.2 Personal protective equipment:

8.2.2.1 Eye protection:

Tightly fitting safety goggles (splash goggles) (e.g. EN 166).

8.2.2.2 Skin protection:

Hand protection

Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other.

Supplementary note: The specifications are based on literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

8.2.2.3 Respiratory protection:

Respiratory protection in case of vapour/aerosol release. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A).

8.2.2.4 General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice.

8.2.3 Exposure controls of environmental impact:

Discharge into the environment must be avoided.

To execute the full range of specific RMM and OC required to fulfill commitment under community environmental legislation.

Adequately control the impact of MDEA on the environment is given in the exposure scenarios, annexed to the SDS.

8.2.4 Consumer exposure control:

The product is not intended for use in the home.

Adequately control the impact of MDEA on the users is given in the exposure scenarios, annexed to the SDS.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Results
Physical state at 20°C and 1013 hPa	liquid Colour: colourless Odour: ammonia-like
Melting / freezing point	-21.3 °C at 1013 hPa
Boiling point	243.3 °c at 1013 hPa
Relative density	1.04 g/cm3 at 20 °C
Vapour pressure	0.0027 hPa at 25°C
Surface tension	not surface active
Water solubility	>1000g/l at 20°C
Partition coefficient n-octanol/water (log value)	-1,08 at 25°c and PH 10.1
Flash point	138 °C at 1013 hPa
Flammability	Non flammable upon ignition. The substance has no pyrophoric properties and does not liberate flammable gases on contact with water.
Explosive properties	non explosive
Self-ignition temperature	280 °C at 1013 hPa
Oxidising properties	no oxidising properties
Granulometry	not applicable
Stability in organic solvents and identity of relevant degradation products	not applicable
Dissociation constant	8.52 at 25°C
Viscosity	99.05 mm^2/s

10. STABILITY AND REACTIVITY

10.1. Reactivity:
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: No corrosive effect on metal.

10.2. Chemical stability:
Methyldiethanolamine is stable when rules of storage and use are observed.

10.3 Possibility of hazardous reactions:
The progress of reaction is exothermic. Reacts with halogenated compounds. Reacts with oxidizing agents. Reacts with acids. Reacts with acid chlorides. Incompatible with acid chlorides and acid anhydrides.

10.4 Conditions to avoid:
Avoid extreme temperatures. See MSDS section 7 - Handling and storage.

10.5. Incompatible materials:
Substances to avoid: acid chlorides, acid anhydrides, acid forming substances, acids, oxidizing agents.

10.6 Hazardous decomposition products:
Carbon oxides and nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

11.1.1 Short-term effects:

Acute toxicity:

	Effect dose	Remark
Acute oral toxicity	LD50: 4680 mg/kg bw (Rats)	BASF AG (1969a).
Acute dermal toxicity	LD50 > 2000 mg/kg (Rabbit)	Equivalent or similar to OECD Guideline 402.
Acute inhalative toxicity	—	(BASF-Test) No mortality within 8 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard.

Assessment of acute toxicity:
Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard.

Irritation:

Assessment of irritating effects: Not irritating to the skin. Eye contact causes irritation.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant (BASF-Test).
Serious eye damage/irritation rabbit: Irritant. (BASF-Test).

11.1.2 Respiratory or skin sensitisation:
Skin sensitizing effects were not observed in animal studies.
Experimental/calculated data: Guinea pig maximization test guinea pig: Non-sensitizing.

11.1.3 CMR-effects:

Mutagenicity: The substance is not mutagenic.
Genetic toxicity: negative.

Carcinogenicity: Assessment of carcinogenicity:
The whole of the information assessable provides no indication of a carcinogenic effect. Under certain conditions the substance can form nitrosamines. Nitrosamines are carcinogenic in animal studies. Study scientifically not justified.

Assessment of teratogenicity: Further research has been proposed that may render additional information on the relevance to human. Therefore, it is proposed not to classify Methyldiethanolamine at this time so that the additional research can be considered.

Specific target organ toxicity (single exposure) Assessment of STOT single:
The available information is not sufficient for evaluation.

12. ECOLOGICAL INFORMATION

Due to the results of the aquatic toxicity studies and the relevant mammalian toxicity studies, the substance is not toxic (not T).

12.1. Ecotoxicity:

Acute toxicity:

	Effect dose	Exposure time	Species	Method	Evaluation
Acute freshwater fish toxicity	LC50	96 h	Leuciscus idus	DIN 38412, part 15 (static)	1466 мг / л
Acute saltwater fish toxicity	LC50	96 h	Cyprinodon variegatus	PARCOM protocol, Part B, using a modified OECD guideline # 203 (semi-static)	> 1000 мг / л
Acute daphnia toxicity	EC50	48 h	Daphnia magna	EU Method C.2 (Acute Toxicity for Daphnia) (79/831/EEC, Annex V, Part C2) (static)	233 мг / л
Acute algae toxicity	EC50	72 h	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	DIN 38412, part 9.	176 мг / л

Longterm-Ecotoxicity:

	Effect dose	Exposure time	Species	Method	Evaluation
Long-term effects on aquatic invertebrates	NOEC	96 h	Acartia tonsa	Method: E16-02 (semi-static)	≥ 100 мг / л

With high probability acutely not harmful to fish.
With high probability acutely not harmful to aquatic invertebrates.
With high probability acutely not harmful to algae.

12.2 Persistence and degradability:

Due to the results of Degradation, the substance is not persistent (not P) and not very persistent (not vP) in the environment.

Physical- and photo-chemical elimination:

Hydrolysis: According to structural properties, hydrolysis is not expected/probable.

Phototransformation

in air: After evaporation or exposure to the air, the substance will be rapidly degraded by indirect photochemical processes.

in water: Radily biodegradable.

in soil: Radily biodegradable.

Biodegradation in water:

Readily biodegradable (according to OECD criteria).
96 % DOC reduction (18 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic).

12.3 Bioaccumulative potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

12.4 Mobility in soil

Assessment transport between environmental compartments:
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

12.5 PBT or vPvB Properties Assessment:

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Incinerate in suitable incineration plant, observing local authority regulations.

Waste codes / waste designations according to EWC / AVV:
A waste code in accordance with the European waste catalog (EWC) cannot be specified, due to dependence on the usage.
The waste code in accordance with the European waste catalog (EWC) must be specified in cooperation with disposal agency/manufacturer/authorities.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. TRANSPORT INFORMATION

Land transport:

Land transport (ADR/RID/GGVSE):	In accordance with the transport regulation the product is not a hazardous cargo.
Sea transport (IMDG - Code/GGVSee):	In accordance with the transport regulation the product is not a hazardous cargo.
Air transport (ICAO-IATA/DGR):	In accordance with the transport regulation the product is not a hazardous cargo.

15. REGULATORY INFORMATION

15.1 European Community regulations (labeling):

EC No: 203-312-7

Hazard determining component for labelling: METHYLDIETHANOLAMINE

Other regulations:
- as in Annex I of Directive 67/548/EEC;
- according to Regulation (EC) No 1272/2008.

Hazard symbols, R-phrases and S-phrases for Methyldiethanolamine are in accordance with the Directive 67/548/EEC of June 27, 1967 for harmonization of legal and administrative regulations on classification, packing and labeling of dangerous substances:

Hazard symbol:
Xi - Irritant.

R-phrases:
R 36 - Irritating to eyes.

S-phrases:

S 24 - Avoid contact with skin;
S 51 - Use only in well-ventilated areas.

15.2 Chemical Safety Assessment:
For Methyldiethanolamine has been carried out a chemical safety assessment.

16. OTHER INFORMATION

16.1 Key source for data: CHEMICAL SAFETY REPORT.

16.2 Deciphering of the hazard symbols, R-phrases and hazard statements listed in section 3.

Hazard symbol:
Xi – Irritant.

R-phrases:
36 – Irritating to eyes.

Hazard statements:
H319: Causes serious eye irritation.

16.3 Application to the SDS:
Exposure scenarios for identified uses described in Section 1.2 are annexed to the SDS.

16.4 Further information:

Vertical lines in the left hand margin indicate an amendment from the previous version.

The information given above is presented on a scrupulous basis and represents the best currently available information. No conclusions should be made based on this data concerning the quality or suitability of this product for definite application. Regulatory requirements may change and differ according to a company's location. Customer should provide compliance with state and local legal requirements.

Technical director A.M. Burtsev