

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 23-May-2024
Revision Number 5.08

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	2,2'-Iminodiethanol
Product Code	099-03112,093-03115

Supplier FUJIFILM Wako Pure Chemical Corporation
1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-2029

Emergency telephone number +81-6-6203-3741 / +81-3-3270-8571

Recommended uses For research use only

Restrictions on use Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 1

Skin sensitization

Category 1

Carcinogenicity

Category 2

Reproductive Toxicity

Category 2

Specific target organ toxicity (single exposure)

Category 1, Category 2

Category 1 liver

Category 2 respiratory system, kidneys

Specific target organ toxicity (repeated exposure)

Category 1, Category 2

Category 1 Respiratory tract

Category 2 blood, kidneys, liver

Acute aquatic toxicity

Category 2

Chronic aquatic toxicity

Category 3

Pictograms



Signal word

Danger

Hazard statements

H315 - Causes skin irritation

H318 - Causes serious eye damage

H351 - Suspected of causing cancer

H361 - Suspected of damaging fertility or the unborn child

H317 - May cause an allergic skin reaction

H401 - Toxic to aquatic life

H412 - Harmful to aquatic life with long lasting effects

H370 - Causes damage to the following organs: liver

H371 - May cause damage to the following organs: respiratory system, kidneys

H372 - Causes damage to the following organs through prolonged or repeated exposure: Respiratory tract

H373 - May cause damage to the following organs through prolonged or repeated exposure: blood, kidneys, liver

Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product
- Avoid release to the environment

Precautionary statements-(Response)

- IF exposed: Call a POISON CENTER or doctor/physician
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- Immediately call a POISON CENTER or doctor/physician
- IF ON SKIN: Wash with plenty of soap and water
- Take off contaminated clothing and wash before reuse
- If skin irritation or rash occurs: Get medical advice/attention

Precautionary statements-(Storage)

- Store locked up

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Substance

Formula $\text{HN}(\text{CH}_2\text{CH}_2\text{OH})_2$

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Diethanolamine	99.0	105.14	(2)-354,(2)-302	*	111-42-2

Note on ISHL No.: * in the table means announced chemical substances.

Section 4: FIRST AID MEASURES**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Water spray (fog), Carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Special extinguishing method

No information available

Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

Storage**Safe storage conditions****Storage conditions**

Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed.

Safe packaging material

Glass

Incompatible substances

Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Diethanolamine 111-42-2	N/A	N/A	TWA: 1 mg/m ³ inhalable fraction and vapor Skin

Chemical Name	Concentration standard value set by the Minister of Health, Labor and Welfare (8hr)	Concentration standard value set by the Minister of Health, Labor and Welfare (Short-Term)
Diethanolamine 111-42-2	1 mg/m ³	N/A

Personal protective equipment

Respiratory protection	Protective mask
Hand protection	chemical protective gloves (JIS T 8116)
Eye protection	protective eyeglasses or chemical safety goggles (JIS T 8147)
Skin and body protection	Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form

Color	Colorless - nearly colorless
Turbidity	clear
Appearance	liquid

Odor

characteristic odor

Melting point/freezing point

27 °C

Boiling point, initial boiling point and boiling range

269 °C

Flammability

no data available

Evaporation rate:

no data available

Flammability (solid, gas):

no data available

Upper/lower flammability or explosive limits

Upper: 13 vol%

Lower: 2 vol%

Flash point

138 °C

Auto-ignition temperature:

662 °C

Decomposition temperature:

no data available

pH

no data available

Viscosity (coefficient of viscosity)

no data available

Dynamic viscosity

no data available

Solubilities

Ethanol : Very soluble . water : soluble .

n-Octanol/water partition coefficient:(log Pow)

-1.43

Vapour pressure

no data available

Specific Gravity / Relative density

1.09

Vapour density

3.65

Particle characteristics

no data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	no data available
Chemical stability	May be altered by light.

Hazardous reactions

Reacts violently with strong oxidants.

Conditions to avoid

Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark, Moisture

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

Carbon monooxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Diethanolamine	2300 mg / kg (Rat)	13000 mg / kg (Rabbit)	768 ppm (Rabbit) 4 h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
Diethanolamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust- source information	Acute toxicity -inhalation mist- source information
Diethanolamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
Diethanolamine	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Diethanolamine	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Diethanolamine	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Diethanolamine	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Diethanolamine	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH
Diethanolamine 111-42-2	N/A	Group 2B	A3	Group 2B

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Diethanolamine	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Diethanolamine	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Diethanolamine	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Diethanolamine	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Diethanolamine	EC50 : <i>Pseudokirchneriella subcapitata</i> 2.1 - 2.3 mg/L 96 h	LC50: 4460 - 4980mg/L (96h, <i>Pimephales promelas</i>) LC50: 1200 - 1580mg/L (96h, <i>Pimephales promelas</i>) LC50: 600 - 1000mg/L (96h, <i>Lepomis macrochirus</i>)	EC50 : <i>Daphnia pulex</i> 2.15 mg/L 48 h EC50 : <i>Daphnia magna</i> 0.78 mg/L 21 d

Other data

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Diethanolamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant	Not applicable
IMDG	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Environmentally Hazardous Substance	Not applicable

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57) Notifiable Substances (Law Art.57-2) Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1) Priority Assessment Chemical Substances (Law Article 2, Para.5)
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc	
Regulations for the carriage and storage of dangerous goods in ship	Not applicable
Civil Aeronautics Law	Not applicable
Marine Pollution Prevention Law	Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y
Pollutant Release and Transfer Register Law (2023.4.1-)	Class 1
Class 1 - No.	626
Export Trade Control Order	Not applicable

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Diethanolamine 111-42-2 (99.0)	-	Applicable	Applicable

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)
[://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop](http://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop)
 IATA dangerous Goods Regulations
 RTECS:Registry of Toxic Effects of Chemical Substances
 Japan Industrial Safety and Health Association GHS Model SDS
 Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
 etc

Record of SDS revisions

The following contents were revised. Hazards identification. Ecological information. Regulatory information.

Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

End of Safety Data Sheet