



Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: 2,2',2''-Nitrilotriethanol

SDS No. : 8012E-4

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Safety Management Dept. of Chemicals

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification

GHS classification and label elements of the product**Classification of the substance or mixture****HEALTH HAZARDS**

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2

Skin sensitization: Category 1

Carcinogenicity: Category 2

Specific target organ toxicity – single exposure: Category 2(liver)

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 2(respiratory tract)

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Signal word: Warning

HAZARD STATEMENT

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

Suspected of causing cancer

May cause damage to organs after single exposure(liver)

May cause respiratory irritation

May cause damage to organs through prolonged or repeated exposure(respiratory tract)

PRECAUTIONARY STATEMENT**Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Contaminated work clothing should not be allowed out of the workplace.

Wear eye protection/face protection.

Do not eat, drink or smoke when using this product.

Response



Get medical advice/attention if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF exposed or concerned: Call a POISON CENTER or doctor/physician.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Storage
Store in a well-ventilated place. Keep container tightly closed.

Disposal
Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:2,2',2''-Nitrilotriethanol

Content (%):97(min)

Chemical formula:(CH₂CH₂OH)₃N

Chemicals No, Japan:2-308

CAS No.:102-71-6

MW:149.19

ECNO:203-049-8

Note : The figures shown above are not the specifications of the product.

Impurities

2,2'-Iminodiethanol ≤1.0% (CAS No.111-42-2)

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.



5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2 to extinguish.

Unsuitable extinguishing media

Indoor firefighting equipment or outdoor firefighting equipment

Sprinkler equipment

Dry-powder firefighting equipment – except for phosphate etc.,hydrogen carbonate etc.

Straight stream water extinguisher

Water mist extinguisher

Reinforcing liquid jet extinguisher

Dry-powder extinguisher – except for phosphate etc.,hydrogen carbonate etc.

Bucket of water or tank of water

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire/flame resistant/retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.



When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing should not be allowed out of the workplace.

Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene

8. Exposure controls/personal protection

Control parameters

Adopted value

(2,2',2''-Nitrilotriethanol)

ACGIH(1990) TWA: 5mg/m³ (Eye & skin irr)

(2,2' -Iminodiethanol)

ACGIH(2008) TWA: 1mg/m³(IFV) (Liver & kidney dam)

Notation

(2,2' -Iminodiethanol)

Skin

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid or crystals

Color: Colorless to pale yellow

Odor: Characteristic odor

Melting point/Freezing point: 21.6°C

Boiling point or initial boiling point: (2,2',2''-Nitrilotriethanol)335.4°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 3.6 vol %

Upper explosion limit: 7.2 vol %

Flash point: (2,2',2''-Nitrilotriethanol)179°C



Auto-ignition temperature: (2,2',2''-Nitrilotriethanol)324°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Miscible

n-Octanol/water partition coefficient: log Pow-2.3

Vapor pressure: < 1Pa (25°C)

Density and/or relative density: 1.1

Relative vapor density (Air=1): 5.1

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1

No Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

The substance is a weak base. Reacts with oxidants. Decomposes on burning. This produces toxic and corrosive fumes including nitrogen oxides. (ICSC 1034)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Oxidizing agents

Hazardous decomposition products

Carbon oxides, Nitrogen oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

rat LD50=2300mg/kg (SIDS, 2008)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

(2,2',2''-Nitrilotriethanol)

human irritation (NTP TR 518, 2004 et al)

(2,2'-Iminodiethanol)

rabbit moderate irritation (SIDS, 2008)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(2,2',2''-Nitrilotriethanol)

rabbit recover within 14 days (PATY 6th, 2012 et al)

(2,2'-Iminodiethanol)

rabbit severe irritation (SIDS, 2008)

Sensitization

Skin sensitization

[GHS Cat. Japan, base data]



(2,2',2''-Nitrilotriethanol)

cat. 1; ACGIH 7th, 2001

Mutagenic effects data is not available.

Carcinogenicity

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

cat.2; IARC Gr. 2B (IARC, 2011)

(2,2',2''-Nitrilotriethanol)

IARC-Gr.3 : Not Classifiable as a Human Carcinogen

(2,2'-Iminodiethanol)

IARC-Gr.2B : Possibly carcinogenic to humans

(2,2'-Iminodiethanol)

ACGIH-A3(2008) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive toxicity

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

cat. 2; NTP TER 96001, 1999

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

liver (SIDS, 2008)

[cat.2]

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

kidney; respiratory system/system (SIDS, 2008)

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(2,2',2''-Nitrilotriethanol)

respiratory tract irritation (NTP TR 518, 2004)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

respiratory tract (SIDS, 2008)

[cat.2]

[GHS Cat. Japan, base data]

(2,2'-Iminodiethanol)

blood; kidney; liver (SIDS, 2008)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(2,2',2''-Nitrilotriethanol)

Algae (*Scenedesmus subspicatus*) EC50=169mg/L/96hr (SIDS, 2001)

(2,2'-Iminodiethanol)

Crustacea (*Daphnia*) LC50=2.15mg/L/48hr (Aquire, 2012)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]



(2,2',2''-Nitrilotriethanol)

Crustacea (Daphnia magna) NOEC=16mg/L/21 days (SIDS, 2001)

Water solubility

(2,2',2''-Nitrilotriethanol)

miscible in water (HSDB, 2013)

(2,2' -Iminodiethanol)

very good (ICSC, 2002)

Persistence and degradability

(2,2',2''-Nitrilotriethanol)

Not degrade rapidly (BOD_Degradation : 0% (Registered chemicals data check & review 1978))

(2,2' -Iminodiethanol)

TOC_Degradation : 96.7% (Registered chemicals data check & review)

Bioaccumulative potential

(2,2',2''-Nitrilotriethanol)

log Pow=-2.3 (ICSC, 2003)

(2,2' -Iminodiethanol)

log Pow=-1.43 (PHYSROP DB, 2005)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

Not applicable to UN No., UN CLASS

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

Noxious Liquid ; Cat. Y

2,2' -Iminodiethanol

Noxious Liquid ; Cat. Z

2,2',2''-Nitrilotriethanol

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

Chemicals listed in TSCA Inventory

2,2',2''-Nitrilotriethanol; 2,2' -Iminodiethanol

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

**16. Other information****GHS classification and labelling**

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2: H319 Causes serious eye irritation

Skin Sens. 1: H317 May cause an allergic skin reaction

Carc. 2: H351 Suspected of causing cancer

STOT SE 2: H371 May cause damage to organs after single exposure

STOT SE 3: H335 May cause respiratory irritation

STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (7th revised edition, 2017), UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (61th Edition) 2020

Classification, labelling and packaging of substances and mixtures (Table 3 ECNO6182012)

2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2020 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/ENG/Classification/index.php>

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2019).