Date of issue: 2018/05/29
Date of revision: 2022/03/29

Safety Data Sheet

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

Product identifier:
- Product name: 2-Mercaptoethanol
- SDS No. : 4777E-3

Details of the supplier of the safety data sheet
- Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
- Address: 3-1, Honmachibashi, Chuo-ku,Osaka ,JAPAN
- Division: Chemical Safety Management Department
- 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

PHYSICAL AND CHEMICAL HAZARDS
- Flammable liquids: Category 4

HEALTH HAZARDS
- Acute toxicity (Oral): Category 3
- Acute toxicity (Dermal): Category 2
- Skin corrosion/irritation: Category 2
- Serious eye damage/eye irritation: Category 2
- Specific target organ toxicity - single exposure: Category 2(central nervous system)
- Specific target organ toxicity - repeated exposure: Category 2(liver)

ENVIRONMENT HAZARDS
- Hazardous to the aquatic environment (Acute): Category 1
- Hazardous to the aquatic environment (Long-term): Category 1

Label elements

Signal word: Danger

HAZARD STATEMENT
- Combustible liquid
- Toxic if swallowed
- Fatal in contact with skin
- Causes skin irritation
- Causes serious eye irritation
- May cause damage to organs(central nervous system)
- May cause damage to organs through prolonged or repeated exposure(liver)
- Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention
- Avoid release to the environment.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Do not breathe dust/fume/gas/mist/vapors/spray.

Do not get in eyes, on skin, or on clothing.
Wash contaminated parts thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media other than water to extinguish.
Collect spillage.
Get medical advice/attention if you feel unwell.
IF exposed or concerned: Call a POISON CENTER/doctor/physician.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off immediately all 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.
IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
IF SWALLOWED: Rinse mouth.

Storage

Store in a well-ventilated place.

Disposal

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

Specific Physical and Chemical hazards

Heating may cause fire.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:2-Mercaptoethanol
Content (%):99(min)
Chemical formula:HSCH2CH2OH
Chemicals No, Japan:2-458
CAS No.:60-24-2
MW:78.14
ECNO:200-464-6

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

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or 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.
Immediately call a POISON CENTER/doctor/physician.

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

Specific hazards arising from the substance or mixture

Containers may explode when heated.
Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with full face peace 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.

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, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Wear protective gloves/protective clothing/eye protection/face protection.
When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Do not get in eyes, on skin, or on clothing.
Wash contaminated parts thoroughly after handling.
Do not eat, drink or smoke when using this product.
Take off immediately all 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.
Keep under lock and key.

Container and packaging materials for safe handling

Glass
Polyethylene

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8. Exposure controls/personal protection

Control parameters

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.

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9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid
Color: Colorless to yellow
Odor: Characteristic odor
Melting point/Freezing point: <-100℃
Boiling point or initial boiling point: (2-Mercaptoethanol)157℃
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: 2.3 vol %
Upper explosion limit: 18 vol %

Flash point: (2-Mercaptoethanol)74℃
Auto-ignition temperature: (2-Mercaptoethanol)295℃
Decomposition temperature data is not available.
pH data is not available.

Kinematic viscosity data is not available.
Solubility:
Solubility in water: Soluble
n-Octanol/water partition coefficient: log Pow=-0.3
Vapor pressure: 0.13 kPa (20℃)
Density and/or relative density: 1.1
Relative vapor density (Air=1): 2.7 (calculated)
Relative density of the Vapor/air - mixture at 20℃ (Air = 1): 1.002
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
Decomposes on heating. This produces toxic gases of sulfur oxides. Reacts with oxidants and metals. (ICSC 0916)
Conditions to avoid
Contact with incompatible materials.
Contact with fire source.
Incompatible materials
Oxidizing agents, Metals
Hazardous decomposition products
Carbon oxides, Sulfur oxides

11. Toxicological Information

Information on toxicological effects
Acute toxicity
Acute toxicity (Oral)
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
rat LD50＝244mg/kg (MOE risk assessment vol.7, 2009)
Acute toxicity (Dermal)
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
rabbit LD50=150mg/kg (HSDB, 2006)
Irritant properties
Skin corrosion/irritation
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
rabbit irritation (IUCLID, 2000)
Serious eye damage/irritation
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
rabbit severe corneal opacity (HSDB, 2006)
Allergenic and sensitizing effects data is not available.
Mutagenic effects data is not available.
Carcinogenic effects data is not available.
Reproductive toxicity data is not available.
STOT
STOT-single exposure

[cat.2]
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
central nervous system (HSDB, 2006et al)
STOT-repeated exposure
[cat.2]
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
liver (MOE risk assessment vol.7, 2009)
Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity
Aquatic toxicity
Very toxic to aquatic life with long lasting effects
Hazardous to the aquatic environment (Acute)
[GHS Cat. Japan, base data]
(2-Mercaptoethanol)
Crustacea (Daphnia magna) EC50=0.4mg/L/48hr (SIDS, 2005)
Water solubility
(2-Mercaptoethanol)
miscible (ICSC, 1997)
Persistence and degradability
(2-Mercaptoethanol)
Not degrade rapidly (SIDS, 2005)
Bioaccumulative potential
(2-Mercaptoethanol)
log Pow=-0.3 (ICSC, 1997)
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
Avoid release to the environment.
Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No. or ID No.: 2966
UN Proper Shipping Name :
THIOGLYCOL
Class or division (Transport hazard class) : 6.1
Packing group : II
ERG GUIDE No.: 153
IMDG Code (International Maritime Dangerous Goods Regulations)
UN No.: 2966
Proper Shipping Name :
THIOGLYCOL

Class or division : 6.1
Packing group : II
IATA Dangerous Goods Regulations
UN No.: 2966
Proper Shipping Name :
THIOGLYCOL
Class or division : 6.1
Hazard labels : Toxic
Packing group : II
Environmental hazards
MARPOL Annex III – Prevention of pollution by harmful substances
Marine pollutants (yes/no) : yes
MARPOL Annex V – Prevention of pollution by garbage discharge
Hazardous to the aquatic environment – acute hazard: cat.1
2-Mercaptoethanol
Hazardous to the aquatic environment – long-term hazard: cat.1, 2
2-Mercaptoethanol
Maritime transport in bulk according to IMO instruments
Noxious Liquid ; Cat. Y equiv.
2-Mercaptoethanol

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Chemicals listed in TSCA Inventory
2-Mercaptoethanol
Other regulatory information
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling
Flam. Liq. 4: H227 Combustible liquid
Acute Tox. 3: H301 Toxic if swallowed
Acute Tox. 2: H310 Fatal in contact with skin
Skin Irrit. 2: H315 Causes skin irritation
Eye Irrit. 2: H319 Causes serious eye irritation
STOT SE 2: H371 May cause damage to organs
STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure
Aquatic Acute 1: H400 Very toxic to aquatic life
Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects
Reference Book
Globally Harmonized System of classification and labelling of chemicals, UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2021 TLVs and BEIs. (ACGIH)
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 2020).