

Safety Data Sheet

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

Product identifier:

Product name: Crotonaldehyde

Product code(SDS NO): 27475jis_E1-1

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-Cho, Koshigaya, Saitama 343-0844, Japan

Competent section: Quality Assurance Department

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS

Flammable liquids: Category 2

HEALTH HAZARDS

Acute toxicity Oral: Category 3

Acute toxicity Dermal: Category 3

Acute toxicity Inhalation: Category 1

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Skin sensitization: Category 1

Germ cell mutagenicity: Category 1B

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

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment – acute hazard: Category 1

Hazardous to the aquatic environment – long-term hazard: Category 1

(Note) GHS classification without description: Not applicable/Out of classification/Not classifiable

Label elements



Signal word: Danger

HAZARD STATEMENT

Highly flammable liquid and vapor

Toxic if swallowed

Toxic in contact with skin

Fatal if inhaled

Causes severe skin burns and eye damage

Causes serious eye damage

May cause an allergic skin reaction

May cause genetic defects

May cause respiratory irritation

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid release to the environment.
- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wear respiratory protection.(as specified by the manufacturer/supplier or the competent authority.)
- In case of inadequate ventilation wear respiratory protection. (as specified by the manufacturer/supplier or the competent authority.)
- Use only outdoors or in a well-ventilated area.
- Wash contaminated parts thoroughly after handling.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves, protective clothing or face protection.
- Wear protective gloves and face protection.
- Wear eye protection/face protection.
- Use personal protective equipment as required.
- Do not eat, drink or smoke when using this product.

Response

- In case of fire: Use appropriate media.
- Collect spillage.
- Specific treatment is urgent.
- Specific treatment is required.
- IF exposed or concerned: Get medical advice/attention.
- Immediately call a POISON CENTER or doctor/physician.
- Call a POISON CENTER or doctor/physician if you feel unwell.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF ON SKIN: Wash with plenty of soap and water.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If skin irritation or rash occurs: Get medical advice/attention.
- Take off immediately all contaminated clothing.
- 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.
- Rinse mouth.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

- Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Store locked up.

Disposal

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

Physical and Chemical hazards

- Highly flammable liquid. Vapor/air mixture may explode.

Substance/Mixture:

Substance

Common name, synonyms: (E)-2-Butenal

Ingredient name: Crotonaldehyde

Content(%): 99.0 <

Chemical formula: C₄H₆O

CAS No.: 4170-30-3

MW: 70.09

ECNO: 224-030-0

4. First-aid measures

Descriptions of first-aid measures

General measures

IF exposed or concerned: Get medical attention/advice.

Immediately call a POISON CENTER or doctor/physician.

Call a POISON CENTER or doctor/physician 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. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor/physician.

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, dry sand.

Unsuitable extinguishing media

Do not use direct water jet.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire/ flame resistant/retardant clothing.

Wear cold insulating gloves/face shield/eye 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 after material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Avoid release to the rivers, lakes, ocean, groundwater.

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.

※Do NOT absorb in saw-dust or other combustible absorbents.

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 & explosion)

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Exhaust/ventilator

Exhaust/ventilator should be available.

Safety treatments

Avoid contact with skin.

Avoid contact with eyes.

Avoid breathing dust, vapor, mist, or gas.

Safety Measures/Incompatibility

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear protective gloves and face protection.

Wear eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Conditions for safe storage, including any incompatibilities

Recommendation for storage

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

Keep cool. Protect from sunlight.

Store locked up.

8. Exposure controls/personal protection

Control parameters

Adopted value

ACGIH(1995) STEL: C 0.3ppm (Eye & URT irr)

Notation···Skin

OSHA-PEL

TWA 2ppm, 6mg/m3

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.

In case of inadequate ventilation wear respiratory protection.

Wear positive pressure self-contained breathing apparatus (SCBA).

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Safety and Health measures

Wash ... 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 immediately all contaminated clothing and wash it before reuse.

9. Physical and Chemical Properties**Information on basic physical and chemical properties****Physical properties**

Appearance: LIQUID

Color: COLOURLESS.

Odor: PUNGENT ODOUR

pH data N.A.

Phase change temperature

Initial Boiling Point/Boiling point: 104°C

Melting point/Freezing point: (trans) -76.5°C; (cis) -69°C

Decomposition temperature data N.A.

Flash point: (O.C.) 13°C

Auto-ignition temperature: 232.2°C

Explosive properties: Flammability or explosive limit

lower limit: 2.1 vol %

upper limit: 15.5 vol %

Vapor pressure: 4.0 kPa (20°C)

Relative Vapor Density (Air=1): 2.41

Relative density of the Vapor/air-mixture at 20°C (Air = 1): 1.06

Specific gravity/Density: 0.85

Solubility

Solubility in water: 15~18 g/100 ml

n-Octanol /water partition coefficient: log Pow 0.6

10. Stability and Reactivity**Chemical stability**

Highly flammable. Many reactions may cause fire or explosion.

Turns pale yellow on exposure to light and air.

Possibility of hazardous reactions

May form explosive peroxides.

The vapour is heavier than air and may travel along the ground; distant ignition possible.

The substance can presumably form explosive peroxides. The substance may polymerize. This

generates fire or explosion hazard.

The substance reacts violently with oxidants and many other substances. This generates fire and explosion hazard.

Attacks plastics and many other substances.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat.

Incompatible materials

Oxidizing agents, Plastics, Many other substances

Hazardous decomposition products

Carbon oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=80 mg/kg (EPA_J assessment vol.5, 2006)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rabbit LD50=324 mg/kg (EPA JP risk assessment data vol.5, 2006)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

vapor : rat LC50=85 ppm/4hr (IUCLID, 2000)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

rabbit : corrosive (HSDB, 2005)

Serious eye damage /irritation

[GHS Cat. Japan, base data]

rabbit : severe disorder (HSDB, 2005)

Skin sensitization

[GHS Cat. Japan, base data]

cat.1; HSDB, 2005

Germ cell mutagenicity

[GHS Cat. Japan, base data]

cat.1B; IARC 63, 1995

No Teratogenic effects data available

Carcinogenicity

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

ACGIH-A3(1995) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

No reproductive toxicity data available

Delayed and immediate effects and also chronic effects from short- and long-term exposure

STOT

STOT-single exposure

[cat.3(resp. irrit.)]

[Japan published data]

Respiratory tract irritation (ACGIH 7th, 2001)

No Aspiration hazard data available

12. Ecological Information

Toxicity

Aquatic toxicity

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

Aquatic acute toxicity component(s) data

[GHS Cat. Japan, base data]

Fish (top minnow) LC50=0.072mg/L/96hr (EPA_Japan, 2002)

Water solubility

15~18 g/100 ml (ICSC, 2003)

No Persistence and degradability data available

Bioaccumulative potential

log Pow=0.6 (PHYSPROP Database, 2005)

13. Disposal considerations

Waste treatment methods

Avoid release to the environment (– if this is not the intended use).

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

14. Transport Information

UN No, UN CLASS

UN number: 1143

UN proper shipping name: CROTONALDEHYDE, STABILIZED

Transport hazard class(es): 6.1

Transport subsidiary risks: 3

Packing group: I

ERG GUIDE NO.: 131P

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

Noxious Liquid ; Cat. Y

Crotonaldehyde

15. Regulatory Information

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

US major regulations

TSCA

Crotonaldehyde

Other regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

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

16. Other information

GHS classification and labelling

Flam. Liq. 2: H225 Highly flammable liquid and vapor

Acute Tox. 3: H301 Toxic if swallowed

Acute Tox. 3: H311 Toxic in contact with skin

Acute Tox. 1: H330 Fatal if inhaled

Skin Corr. 1: H314 Causes severe skin burns and eye damage

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Eye Dam. 1: H318 Causes serious eye damage

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

Muta. 1B: H340 May cause genetic defects

STOT SE 3: H335 May cause respiratory irritation

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, (4th ed., 2011), UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 18th edit., 2013 UN

Classification, labelling and packaging of substances and mixtures (table 3-1 ECNO6182012)

2012 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2014 TLVs and BEIs. (ACGIH)

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

Supplier's data/information

Chemical Risk Information Platform (CHRIP)(NITE) <http://www.safe.nite.go.jp/japan/db.html>

GHS Classification Guidance for Enterprises 2013 Revised Edition (August, 2013, METI)

Other information

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It is advised to make their own tests to determine the safety and suitability of each such product or combination for their own purposes.

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.