

Chemical Safety Data Sheet MSDS / SDS

Isoprene

Revision Date:2025-01-06 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name : Isoprene
CBnumber : CB8854379
CAS : 78-79-5
EINECS Number : 201-143-3
Synonyms : isoprene,buffer solution

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

Precautionary statements

P405 Store locked up.
P403+P235 Store in a well-ventilated place. Keep cool.
P370+P378 In case of fire: Use ... for extinction.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P201 Obtain special instructions before use.

Hazard statements

H412 Harmful to aquatic life with long lasting effects

H411 Toxic to aquatic life with long lasting effects

H350 May cause cancer

H341 Suspected of causing genetic defects

H224 Extremely flammable liquid and vapour

Disposal

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/isoprene>

SECTION 3: Composition/information on ingredients

Substance

| | |
|--------------|---------------------------------|
| Product name | : Isoprene |
| Synonyms | : isoprene,buffer solution |
| CAS | : 78-79-5 |
| EC number | : 201-143-3 |
| MF | : C ₅ H ₈ |
| MW | : 68.12 |

SECTION 4: First aid measures

Description of first aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) Foam Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Pay attention to flashback. Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

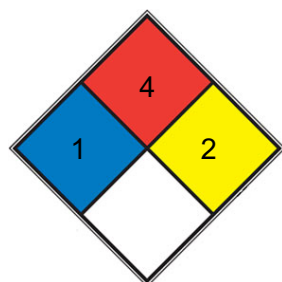
Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

NFPA 704



HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will

FIRE 4 burn readily. Includes pyrophoric substances. Flash point below room temperature at 22.8 °C (73 °F). (e.g. acetylene, propane, [hydrogen gas](#))

REACT 2 Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g. white phosphorus, [potassium](#), [sodium](#))

SPEC.

HAZ.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

Environmental precautions

Do not let product enter drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemisorb?). Dispose of properly. Clean up affected area.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage stability

Recommended storage temperature 2 - 8 °C

Heat sensitive.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact Material: Viton?

Minimum layer thickness: 0,7 mm Break through time: 480 min

Material tested: Vitoject? (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,4 mm Break through time: 30 min

Material tested: Camatril? (KCL 730 / Aldrich Z677442, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

| | |
|---|-------------------------------------|
| Appearance | colorless liquid |
| Odour | No data available |
| Odour Threshold | 0.048ppm |
| pH | No data available |
| Melting point/freezing point | Melting point/range: -146 °C - lit. |
| Initial boiling point and boiling range | 34 °C - lit. |
| Flash point | -54 °C - closed cup |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |

| | |
|--|--|
| Upper/lower flammability or explosive limits | Upper explosion limit: 8,9 %(V) Lower explosion limit: 1,5 %(V) |
| Vapour pressure | 634 hPa at 21,1 °C |
| Vapour density | 2.35 (vs air) |
| Relative density | 0,681 g/cm ³ at 25 °C - lit. No data available |
| Water solubility | 0,642 g/l at 25 °C - partly soluble |
| Partition coefficient: n-octanol/water | log Pow: 3,2 - 4,5 at 20 °C |
| Autoignition temperature | 220 °C |
| Decomposition temperature | No data available |
| Viscosity | Viscosity, kinematic: No data available Viscosity, dynamic: No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |
| Henry's Law Constant | (x 10 ⁻² atm·m ³ /mol): 3.45 at 18 °C (dynamic stripping cell-MS, Karl et al., 2003) |
| λ _{max} | 231nm(neat)(lit.) |

Other safety information

No data available

SECTION 10: Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) . Contains the following stabilizer(s):

4-tert-butylpyrocatechol (<=0,1 %)

Possibility of hazardous reactions

Violent reactions possible with: fuming sulfuric acid

Oxidizing agents sulfuric acid Nitric acid Reducing agents Alcohols halogens

chlorosulfonic acid

Violent polymerization may be caused by: polymerisation initiators

Ozone Acetone Peroxides

Conditions to avoid

Heat. Warming.

Incompatible materials

Iron, copper compounds

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Oral

LC50 Inhalation - Rat - 4 h - 180 mg/l Remarks: Behavioral:General anesthetic. (RTECS)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

(OECD Test Guideline 406)

Germ cell mutagenicity

Suspected of causing genetic defects. Test Type: comet assay

Metabolic activation: with and without metabolic activation Result: positive

Remarks: (ECHA) Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: Chromosome aberration test Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapor) Method: OECD Test Guideline 475 Result: negative

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapor) Method: OECD Test Guideline 474 Result: positive

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Toxicity

LD50 for mice: 144 mg isoprene vapors/l air (Gostinskii)

SECTION 12: Ecological information

Toxicity

No data available

Toxicity to fish

semi-static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 7,43 mg/l - 96 h

(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - *Daphnia magna* (Water flea) - 5,77 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae

static test ErC50 - *Pseudokirchneriella subcapitata* (green algae) - > 35,2 mg/l - 72 h

(OECD Test Guideline 201)

Toxicity to bacteria

static test NOEC - microorganisms - 2 mg/l - 5 h

(OECD Test Guideline 301D)

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Toxics Screening Level

Use of this potency factor, 0.0538 ($\mu\text{g}/\text{m}^3$)-1, results in a calculated IRSL pf 0.02 $\mu\text{g}/\text{m}^3$ and an SRSL of 0.2 $\mu\text{g}/\text{m}^3$ with annual averaging.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

UN number

ADR/RID: 1218 IMDG: 1218 IATA: 1218

UN proper shipping name

ADR/RID: ISOPRENE, STABILIZED IMDG: ISOPRENE, STABILIZED

IATA: Isoprene, stabilized

| | | |
|------|---|----------|
| 14.3 | Transport hazard class(es) ADR/RID: 3 IMDG: 3 | IATA: 3 |
| 14.4 | Packaging group ADR/RID: I IMDG: I | IATA: I |
| 14.5 | Environmental hazards ADR/RID: no IMDG Marine pollutant: yes | IATA: no |
| 14.6 | Special precautions for user No data available | |

SECTION 15: Regulatory information

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

EC Inventory:Listed.

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

SECTION 16: Other information

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

Other Information

Usually contains inhibitors to prevent polymerization. An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert. Check for peroxides prior to distillation; eliminate if found. Do NOT take working clothes home.

Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.