

Material Safety Data Sheet



Isoprene

Section 1. Chemical product and company identification

Product Name : Isoprene
Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253
Synonym : 1,3-butadiene, 2-methyl-; isoprene (dot); beta-methylbivinyll; 2-methylbutadiene; 2-methyl-1,3-butadiene
Material uses : Other non specified industry: MONOMER FOR MANUFACTURE OF POLYISOPRENE; CHEMICAL INTERMEDIATE; COMPONENT OF BUTYL RUBBER.
MSDS# : 001128
Date of Preparation/Revision : 1/4/2007.
In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Liquid. (COLORLESS WATER LIQUID WITH A MILD ODOR)
Emergency overview : Danger!
HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES, RESPIRATORY TRACT, EYE, LENS OR CORNEA, NOSE, SINUSES.
SUSPECT CANCER HAZARD.
MAY CAUSE CANCER.
VAPOR MAY CAUSE FLASH FIRE.
Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Risk of cancer depends on duration and level of exposure.

Routes of entry : Inhalation. Ingestion.

Potential acute health effects

Eyes : Irritating to eyes.
Skin : Irritating to skin.
Inhalation : Practically non-toxic by inhalation.
Ingestion : MAY BE HARMFUL IF SWALLOWED.

Potential chronic health effects : **CARCINOGENIC EFFECTS** Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS Not available.

Medical conditions aggravated by overexposure : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

United States

isoprene (stabilized) 78-79-5 100

Exposure limits

AIHA WEEL (United States, 1/2005). Notes: 2004 Revised Document

TWA: 2 ppm 8 hour(s). Form: All forms

Section 4. First aid measures

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 219.85°C (427.7°F)
- Flash point** : Closed cup: -53.15°C (-63.7°F).
- Flammable limits** : Lower: 2% Upper: 9%
- Products of combustion** : These products are carbon oxides (CO, CO₂).
- Fire fighting media and instructions** : In case of fire, use water spray (fog), foam, dry chemicals, or CO₂.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

- Handling** : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
- Storage** : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

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- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product name

Exposure limits

United States

isoprene (stabilized)

AIHA WEEL (United States, 1/2005). Notes: 2004 Revised Document
TWA: 2 ppm 8 hour(s). Form: All forms

Section 9. Physical and chemical properties

- Physical state** : Liquid. (COLORLESS WATER LIQUID WITH A MILD ODOR)
- Odor** : MILD, AROMATIC
- Molecular weight** : 68.13 g/mole
- Molecular formula** : C5-H8
- Boiling/condensation point** : 33.85°C (92.9°F)
- Melting/freezing point** : -120.15°C (-184.3°F)
- Critical temperature** : 211.2°C (412.2°F)
- Specific gravity** : 0.681 (Water = 1)
- Vapor pressure** : 74.6 kPa (560 mm Hg) (at 20°C)
- Vapor density** : 2.4 (Air = 1)

Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Highly reactive with oxidizing agents.
- Hazardous polymerization** : Will not occur.

Section 11. Toxicological information

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
isoprene (stabilized)	LC50	127080 ppm (1 hour(s))	Inhalation	Rat

- Chronic effects on humans** : **CARCINOGENIC EFFECTS** Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP. Causes damage to the following organs: mucous membranes, upper respiratory tract, eye, lens or cornea, nose/sinuses.
- Other toxic effects on humans** : Not considered to be toxic for humans.
- Specific effects**
- Carcinogenic effects** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenic effects** : No known significant effects or critical hazards.
- Reproduction toxicity** : No known significant effects or critical hazards.

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Section 12. Ecological information

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
isoprene (stabilized)	Lepomis macrochirus (LC50)	96 hour(s)	42.54 mg/l
	Pimephales promelas (LC50)	96 hour(s)	74.83 mg/l
	Pimephales promelas (LC50)	96 hour(s)	75 mg/l
	Pimephales promelas (LC50)	96 hour(s)	77 mg/l
	Pimephales promelas (LC50)	96 hour(s)	78 mg/l
	Pimephales promelas (LC50)	96 hour(s)	80 mg/l

Products of degradation : These products are carbon oxides (CO, CO₂) and water.



Toxicity of the products of biodegradation : The product itself and its products of degradation are not toxic.


Section 13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

<u>Regulatory information</u>	<u>UN number</u>	<u>Proper shipping name</u>	<u>Class</u>	<u>Packing group</u>	<u>Label</u>	<u>Additional information</u>
DOT Classification	UN1218	ISOPRENE, STABILIZED	3	I		Reportable quantity 100 lbs. (45.36 kg) Limited quantity Yes. Packaging instruction Passenger Aircraft Quantity limitation: 1 L Cargo Aircraft Quantity limitation: 30 L Special provisions T11, TP2
TDG Classification	UN1218	ISOPRENE, STABILIZED	3	I		Explosive Limit and Limited Quantity Index 0 Passenger Carrying Ship Index Forbidden Passenger

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						Carrying Road or Rail Index 1
Mexico Classification	UN1218	ISOPRENE, STABILIZED	3	I		Reportable quantity 100 lbs. (45.36 kg) Limited quantity Yes. Packaging instruction Passenger Aircraft Quantity limitation: 1 L Cargo Aircraft Quantity limitation: 30 L Special provisions T11, TP2

Section 15. Regulatory information

United States

HCS Classification : Flammable liquid
Carcinogen
Target organ effects

U.S. Federal regulations : TSCA 8(b) inventory: isoprene (stabilized)
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: isoprene (stabilized)
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: isoprene (stabilized): Fire hazard, reactive, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: isoprene (stabilized)
Clean air act (CAA) 112 accidental release prevention: isoprene (stabilized)
Clean air act (CAA) 112 regulated flammable substances: isoprene (stabilized)
Clean air act (CAA) 112 regulated toxic substances: No products were found.

State regulations : Pennsylvania RTK: isoprene (stabilized): (environmental hazard, generic environmental hazard)
Massachusetts RTK: isoprene (stabilized)
New Jersey: isoprene (stabilized)
WARNING: This product contains a chemical known to the State of California to cause cancer.

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<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
isoprene (stabilized)	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
CEPA DSL: isoprene (stabilized)

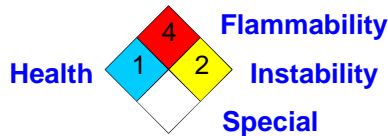
Section 16. Other information

Label Requirements : HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES, RESPIRATORY TRACT, EYE, LENS OR CORNEA, NOSE, SINUSES.
SUSPECT CANCER HAZARD.
MAY CAUSE CANCER.
VAPOR MAY CAUSE FLASH FIRE.

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		4
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.) :



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.