

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 06/04/2015 Supersedes: 03/11/2015 Version: 2.0

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

1.1. Product identifier

Product form : Mixture

Product name : Isoprene (0.00001% - 0.0999%) in Hexane

Product code : SG-2002-01790

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

Use of the substance/mixture : Test gas/Calibration gas.

1.3. Details of the supplier of the safety data sheet

Air Liquide 2700 Post Oak Boulevard Houston, TX 77056 - USA T 1-800-819-1704 www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Liq. 2 H225
Skin Irrit. 2 H315
Repr. 2 H361
STOT SE 3 H336
STOT RE 2 H373
Asp. Tox. 1 H304

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



!>



GHS02

GHS07 G

GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapor

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H336 - May cause drowsiness or dizziness

H361 - Suspected of damaging fertility or the unborn child (Dermal, Inhalation)

H373 - May cause damage to organs through prolonged or repeated exposure (Dermal,

Inhalation)

OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking

P233 - Keep container tightly closed

P240 - Ground/bond container and receiving equipment

P241 - Use explosion-proof electrical/ventilating/lighting/... equipment

P242 - Use only non-sparking tools

P243 - Take precautionary measures against static discharge

P260 - Do not breathe gas

P264 - Wash ... thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear eye protection, face protection, protective gloves, protective clothing

P301+P310 - If swallowed: Immediately call a poison center/doctor/...

P302+P352 - If on skin: Wash with plenty of water

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P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing

P308+P313 - If exposed or concerned: Get medical advice/attention

P312 - Call a poison center/doctor/... if you feel unwell P314 - Get medical advice/attention if you feel unwell P321 - Specific treatment (see ... on this label)

2221 Do NOT induce veniting

P331 - Do NOT induce vomiting

P332+P313 - If skin irritation occurs: Get medical advice/attention P362+P364 - Take off contaminated clothing and wash it before reuse

P370+P378 - In case of fire: Use ... to extinguish

P403+P233 - Store in a well-ventilated place. Keep container tightly closed

P403+P235 - Store in a well-ventilated place. Keep cool

P405 - Store locked up

P501 - Dispose of contents/container in accordance with local/regional/national/international

regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
n-Hexane	(CAS No) 110-54-3	99.9001 - 99.99999	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Isoprene	(CAS No) 78-79-5	0.00001 - 0.0999	Flam. Liq. 1, H224 Muta. 2, H341 Carc. 1B, H350 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel

unwell, seek medical advice.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash

contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Adverse effects not expected from this product.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation. May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Adverse effects not expected from this product.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous

administration

: Not known.

Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage

to organs through prolonged or repeated exposure.

4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard : This product is flammable.

Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire

and increasing risk of burns and injuries.

Reactivity : None known.

5.3. Advice for firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray

or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.

Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire

fighters. Do not enter fire area without proper protective equipment, including respiratory

protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment consistent with the site emergency plan.

Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent

premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep

upwind.

6.1.2. For emergency responders

Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire

fighters. Equip cleanup crew with proper protection.

Emergency procedures : Evacuate and limit access. Ventilate area. Remove ignition sources. Monitor concentration of

released product. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering atmospheres of unknown contaminant concentration until

proven to be safe.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

For containment : Try to stop release if safe to do so.

Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder

pressure. Close valve after each use and when empty. Handle empty containers with care because residual vapors are flammable. In use, may form flammable vapor-air mixture.

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or

in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Use only non-sparking tools.

Description opening today

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

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity

should be followed.

Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in

use. Protect cylinder from physical damage. Store in well ventilated area. Store locked up.

Incompatible products : None known.

Incompatible materials : Oxidizing materials. Air.

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7.3. Specific end use(s)

See Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Isoprene (0.00001% - 0.0999%) in Hexane	
ACGIH	Not applicable
OSHA	Not applicable
Isoprene (78-79-5)	
Isoprene (78-79-5)	
Isoprene (78-79-5) ACGIH	Not applicable

n-Hexane (110-54-3)		
ACGIH	ACGIH TWA (ppm)	50 ppm
OSHA PEL (TWA) (mg/m³)		1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

8.2. Exposure controls

Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local

exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit

system e.g. for maintenance activities.

Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection. Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.

Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.

Respiratory protection : None necessary during normal and routine operations. See Sections 5 & 6.

Thermal hazard protection : None necessary during normal and routine operations.

Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for

specific methods for waste gas treatment.

Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear, colorless liquid.

Color Colorless Odor : gasoline-like Odor threshold No data available рΗ : No data available : No data available Melting point Freezing point No data available No data available Boiling point Flash point No data available Relative evaporation rate (butyl acetate=1) : No data available See Section 2.1 and 2.2 Flammability (solid, gas) **Explosion limits** No data available

Explosive properties : Without adequate ventilation formation of explosive mixtures may be possible.

Oxidizing properties : None.

Vapor pressure : No data available Relative density : No data available Relative vapor density at 20 °C : No data available

Molecular mass : Not applicable for gas-mixtures.

Relative gas density : Heavier than air

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: No data available Solubility Log Pow : No data available Log Kow : No data available : No data available Auto-ignition temperature Decomposition temperature : No data available Viscosity : No data available : No data available Viscosity, kinematic Viscosity, dynamic : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Can form explosive mixture with air.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing materials. Air.

10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Isoprene (78-79-5)		
LD50 dermal rat	> 1 ml/kg	
LC50 inhalation rat (mg/l)	180 mg/l/4h	
LC50 inhalation rat (ppm)	64597.09 ppm/4h	
ATE US (gases)	64597.090 ppmV/4h	
ATE US (vapors)	180.000 mg/l/4h	
ATE US (dust, mist)	180.000 mg/l/4h	
n-Hexane (110-54-3)		

n-Hexane (110-54-3)		
LD50 dermal rabbit 3000 mg/kg		
LC50 inhalation rat (ppm)	48000 ppm/4h	
ATE US (dermal)	3000.000 mg/kg body weight	
ATE US (gases) 48000.000 ppmV/4h		

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Isoprene (78-79-5)		
IARC group	2B - Possibly carcinogenic to humans	
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 3 - Reasonably anticipated to be Human Carcinogen	
In OSHA Hazard Communication Carcinogen Yes		

Reproductive toxicity : Suspected of damaging fertility or the unborn child (Dermal, Inhalation).

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Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ toxicity (repeated

exposure)

: May cause damage to organs through prolonged or repeated exposure (Dermal, Inhalation).

Aspiration hazard : May be fatal if swallowed and enters airways.

Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation. May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Adverse effects not expected from this product.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Not known

Symptoms/injuries upon intravenous

administration

Chronic symptoms

: Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage

to organs through prolonged or repeated exposure.

SECTION 12: Ecological information

12.1. Toxicity

Isoprene (78-79-5)		
LC50 fish 1	32.5 - 50.15 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])	
EC50 Daphnia 1 140 mg/l (Exposure time: 48 h - Species: Daphnia magna)		
EC50 other aquatic organisms 1	> 1000 mg/l (Exposure time: 96 h - Species: Scenedesmus quadricauda)	
LC50 fish 2	58.75 - 95.32 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])	
n-Hexane (110-54-3)		
LC50 fish 1 2.1 - 2.98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])		

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Isoprene (78-79-5)		
BCF fish 1	(no bioaccumulation expected)	
Log Pow	3.2 - 4.5 (at 20 °C)	

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods

: Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into areas where there is a risk of forming an explosive mixture with air.

Waste disposal recommendations

: Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN3501 Chemical under pressure, flammable, n.o.s. (Isoprene, Hexane), 2.1

UN-No.(DOT) : UN3501

Proper Shipping Name (DOT) : Chemical under pressure, flammable, n.o.s.

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Transport hazard class(es) (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115

DOT Packaging Non Bulk (49 CFR 173.xxx) : 335 DOT Packaging Bulk (49 CFR 173.xxx) : 313

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the

applicable liquefied compressed gases are authorized to be transported in portable tanks in

accordance with the requirements of 173.313 of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : None DOT Quantity Limitations Passenger aircraft/rail : Forbidden

(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 75 kg

CFR 175.75)

DOT Vessel Stowage Location : D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel

carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger

vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 3501 CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., 2, (B/D)

Class (ADR) : 2 - Gases
Classification code (ADR) : 8F
Tunnel restriction code (ADR) : B/D
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0

Transport by sea

UN-No. (IMDG) : 3501

Proper Shipping Name (IMDG) : Chemical under pressure, flammable, n.o.s.

Class (IMDG) : 2 - Gases

Air transport

UN-No. (IATA) : 3501

Proper Shipping Name (IATA) : Chemical under pressure, flammable, n.o.s.

Class (IATA) : 2.1 - Gases : Flammable

SECTION 15: Regulatory information

15.1. US Federal regulations

Isoprene (78-79-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting 0.1 %

n-Hexane (110-54-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting 1.0 %

15.2. International regulations

CANADA

Isoprene (78-79-5)

Listed on the Canadian DSL (Domestic Sustances List)

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n-Hexane (110-54-3)		
Listed on the Canadian DSL (Domestic Sustances List)		
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects	

EU-Regulations

Isoprene (78-79-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

n-Hexane (110-54-3)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

National regulations

Isoprene (78-79-5)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Japanese ISHL (Industrial Safety and Health Law)

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Japanese Pollutant Release and Transfer Register Law (PRTR Law)

Listed on the Canadian IDL (Ingredient Disclosure List)

n-Hexane (110-54-3)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Japanese Pollutant Release and Transfer Register Law (PRTR Law)

Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

Isoprene (78-79-5)				
U.S California - Proposition 65 - Carcinogens List	U.S California - Proposition 65 - Developmental Toxicity	U.S California - Proposition 65 - Reproductive Toxicity - Female	U.S California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	

Isoprene (78-79-5)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) Environmental Hazard List
- U.S. Pennsylvania RTK (Right to Know) List

n-Hexane (110-54-3)

- U.S. Massachusetts Right To Know List
- U.S. New Jersey Right to Know Hazardous Substance List
- U.S. Pennsylvania RTK (Right to Know) List

SECTION 16: Other information

Indication of changes

: Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.

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Other information

: This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2	
Asp. Tox. 1	Aspiration hazard Category 1	
Carc. 1B	Carcinogenicity Category 1B	
Flam. Liq. 1	Flammable liquids Category 1	
Flam. Liq. 2	Flammable liquids Category 2	
Muta. 2	Germ cell mutagenicity Category 2	
Repr. 2	Reproductive toxicity Category 2	
Skin Irrit. 2	Skin corrosion/irritation Category 2	
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2	
STOT SE 3	Specific target organ toxicity (single exposure) Category 3	
H224	Extremely flammable liquid and vapor	
H225	Highly flammable liquid and vapor	
H304	May be fatal if swallowed and enters airways	
H315	Causes skin irritation	
H336	May cause drowsiness or dizziness	
H341	Suspected of causing genetic defects	
H350	May cause cancer	
H361	Suspected of damaging fertility or the unborn child	
H373	May cause damage to organs through prolonged or repeated exposure	
H411	Toxic to aquatic life with long lasting effects	

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

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