

Section 1. Substance name and company identification

1.1 Product identifier

Common name	Isopentane
Chemical name	2-Methylbutane
Chemical class	Alkane

1.2 Relevant identified uses of the substances or mixture and of the company/undertaking

Gasoline additive, solvent, blowing agent for polystyrene, chemical intermediate

1.3 Details of the supplier of the safety data sheet

Manufacturer	South Hampton Resources, Inc. 7752 FM 418 West Silsbee, Texas 77656 USA Tel: + 1 409-385-8300 E mail: customerservice@southhamptonr.com
EU Only Representative	TSGE Concordia House, St James Business Park, Grimbald Crag Court, Knaresborough, North Yorkshire, HG5 8QB, United Kingdom Tel: +44 (0) 1423 799 633 Fax: +44 (0) 1423 797 804

1.4 Emergency telephone number

In case of emergency Tel. +1 703 527 3887 (CHEMTREC)

Section 2. Hazards Identification

2.1 GHS Classification

Flammable liquids, Category 1
Eye irritation, Category 2B
Specific target organ systematic toxicity-single exposure, Category 3
Aspiration hazard, Category 1
Chronic aquatic toxicity -- Category 2

2.2 GHS Label elements

Pictograms:



Signal Word: Danger

Hazard Statements

- H224 Highly flammable liquid and vapour
H304 May be fatal if swallowed and enters airways
H320 Causes eye irritation
H336 May cause drowsiness or dizziness.
H411 Hazardous to the aquatic environment, chronic toxicity -- Category 2
Toxic to aquatic life with long lasting effects.

Precautionary statements

- P210 Keep away from heat/ sparks/open flames/hot surfaces. — No smoking.
P243+P240 Take precautionary measures against static discharge. Ground/bond container and receiving equipment.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection
P301+P310+P331 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
P403+P235 Store in a well-ventilated place. Keep cool. Keep container tightly closed
P370+P378 In case of fire: Use foam, carbon dioxide or dry powder for extinction.
P501 Dispose of product/container in accordance with all applicable regulations.

Section 3. Composition

Name	EC No	CAS No	Concentration
n-Pentane	203-692-4	109-66-0	1 w% min
Isopentane	201-142-8	78-78-4	99 w% max

Section 4. First Aid Measures

4.1 Description of first aid measures

Inhalation

If breathing difficulties, dizziness, or light-headedness occur when working in areas with high vapor concentrations, remove victim to fresh air. If victim experiences continued breathing difficulties, keep patient warm and at rest, and seek medical attention. If breathing stops, begin artificial respiration and seek immediate medical attention.

Skin contact

If this product comes into contact with the skin, wash with soap and water. Seek medical attention if irritation persists. Remove and wash contaminated clothing before re-use.

Accidental eye contact

If this product comes into contact with the eyes, flush with large quantities of water for several minutes, while gently holding the eyelids open. Seek medical attention if irritation persists.

Ingestion

If this product is swallowed, DO NOT INDUCE VOMITING. Give small quantities (<250 ml) of water to drink. Never give anything by mouth to an unconscious person. Seek immediate medical attention

Notes to doctor/physician

Aspiration of solvent may cause chemical pneumonitis.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: isopentane may cause dizziness and drowsiness if inhaled, and high concentrations may result in central nervous system depression, and loss of consciousness.

Ingestion: Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, isopentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

4.3 Indication of any immediate attention and special treatment needed

If ingested or inhaled seek medical attention immediately.

Section 5. Firefighting Measures

5.1 Extinguishing media

Small fires: Use foam, carbon dioxide or dry powder extinguisher.

Large fires: Use foam to extinguish fires. Water spray should not be used, as n-pentane is lighter than water and may form pools of burning liquid on top of water. Keep adjacent containers cool using water spray.

5.2 Special hazards arising from the substance or mixture

Isopentane is extremely flammable. Remove all sources of ignition. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapor/air mixtures may be explosive. Electrostatic discharges may cause fire and/or explosion.

5.3 Advice for fire-fighters

Wear positive pressure Self-Contained Breathing Apparatus.

5.4 Evacuation

If tank, rail car, or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions, also, consider initial evacuation for 300 meters (1/2 mile) in all directions.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources and evacuate unnecessary personnel from the area. Ventilate the area if possible. Wear suitable protective clothing including solvent resistant gloves and coveralls. If vapor concentrations are high, respiratory protective equipment may be required. See section 8 for more information.

6.2 Environmental precautions

Prevent entry into sewers and watercourses. If product enters sewers or watercourses, inform the appropriate environmental authorities.

6.3 Method for cleaning up

Small spills: Remove all ignition sources. Use non-sparking hand tools. Take precautions to avoid electrostatic discharge. Absorb spillage in a non-combustible absorbent, e.g. sand or vermiculite, and place in a suitable container for disposal.

Large spills: Remove all ignition sources. Use non-sparking hand tools. Contain spill and cover if possible to reduce evaporation. Transfer to a suitable container by mechanical means. Take precautions to avoid static discharge, e.g. by grounding containers, etc. Consider initial downwind evacuation for at least 300 meters (1,000 feet).

6.4 Reference to other sections

Refer to section 8 of SDS for personal protection details.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Use only in well ventilated areas. isopentane is extremely flammable. Avoid contact with all ignition sources, including hot surfaces. Take precautions to avoid electrostatic discharges, such as grounding of containers and equipment, and restricting flow rates. Vapors are heavier than air and may accumulate in low lying areas and below ground areas such as ducts and sewers.

7.2 Condition for safe storage, including any incompatibilities

Store in a well ventilated area, away from all ignition sources. If stored in drums, keep out of direct sunlight.

Section 8. Exposure Controls/Personal Protection

8.1 Control parameters

Substance	TWA	Source, Type
n-Pentane	1000 ppm,3000 mg/m ³	OSHA
n-Pentane	600 ppm,1800 mg/m ³	ACGIH
Isopentane	600 ppm,1800 mg/m ³	ACGIH

8.2 Exposure controls

Ensure there is sufficient ventilation of the area. The floor of the storage room must be impermeable to prevent the escape of liquids. General mechanical ventilation may be sufficient to keep product vapor concentrations within specified time-weighted TLV ranges. If general ventilation proves inadequate to maintain safe vapor concentrations, supplemental local exhaust may be required. Other special precautions such as respiratory masks or environmental containment devices may be required in extreme cases.

Respiratory protection

Use only in well ventilated area. If high exposure levels are likely, then suitable respiratory protection will be required. Very high vapor concentrations may result in oxygen displacement and self-contained breathing apparatus or airline may be required.

Hand Protection

Wear suitable chemical resistant gloves recommended for use with hydrocarbon solvent. Nitrile gloves may be suitable, but glove manufacturers' specifications should always be checked first. Natural rubber gloves are not suitable. Change gloves in accordance with manufacturer recommendations. If gloves are damaged during use, remove immediately and wash hands before replacing with new gloves.

Eye protection

Wear suitable eye protection, safety glasses or goggles, when handling this product.

Skin protection

Aprons or coveralls made of fire retardant material are recommended. These should be changed after use or if contaminated. Wash before re-use.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Colorless Liquid
Odor:	Gasoline-like odor
Molecular weight:	72
pH:	not applicable
Melting point/freezing point:	-256°F/-160°C
Approximate boiling range :	80-100°F/27-38°C
Flash point:	-70°F/-57°C
Evaporation rate:	not available
Flammability limits in air	
Lower:	1.4 v%
Upper:	8.3 v%
Reid vapor pressure at 100°F:	20.7 psia
Relative vapor density (Air=1.0)	2.6
Density at 60°F:	0.624 kg/l
Solubility in water:	negligible
Partition Coefficient: n-octanol/water:	2.72
Auto-ignition temperature:	788°F/402°C
Viscosity:	not available
Oxidizing properties:	none

Sources of Information:

1. Company product testing
2. Hawley's Condensed Chemical Dictionary revised by N. Irving Sax and Richard J. Lewis, and
3. CHRIS directory

Section 10. Stability and Reactivity

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Keep away from sources of ignition.

10.5 Incompatible materials

This product is incompatible with strong oxidizing agents, strong acids and bases, and selected amines.

10.6 Hazardous decomposition products

None

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity:LC₅₀ (Mouse) 450 mg/l/2 hour

Harmful when inhaled in high concentrations or ingested. Isopentane may cause dizziness and drowsiness if inhaled, and high concentrations may result in central nervous system depression, and loss of consciousness. Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, isopentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

Irritation: isopentane can be irritating to the eye, may cause redness.**Corrosivity:** Not corrosive**Repeated dose toxicity:****Sensitisation:** Not known to be a sensitizer

NOAEL (90 day) 2250 ppm

Prolonged or repeated contact of this product will result in defatting of the skin, causing dryness and cracking.

Carcinogenicity: Not expected to be carcinogenic.**Mutagenicity:** Not expected to be mutagenic**Toxicity for reproduction:** Not expected to be toxic to reproduction.**Route of exposure:** Inhalation and ingestion

Symptoms related to the physical, chemical and toxicological characteristics: isopentane may cause dizziness and drowsiness if inhaled, and high concentrations may result in central nervous system depression, and loss of consciousness. Symptoms of ingestion may include nausea, vomiting, as well as symptoms of dizziness, drowsiness and central nervous system depression. If vomiting occurs, isopentane may be aspirated into the lungs, with a risk of chemical pneumonitis.

Section 12. Ecological Information

**GHS Classification:****H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2**

Toxic to aquatic life with long lasting effects.

12.1 Toxicity

EC50 (*Oncorhynchus mykiss*, rainbow trout) 3.1 mg/l (96 hour)EC50 (*Daphnia magna*) 2.3 mg/l (48 hour)

Isopentane is classified as toxic to aquatic organisms and likely to cause long term effects in the environment.

Acute aquatic toxicity studies on samples of Isopentane show acute toxicity values greater than 1 mg/L and mostly in the range 1-10 mg/L. Isopentane will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment.

12.2 Persistence and degradability

Isopentane is readily biodegradable in aquatic systems, however, in view of its high evaporation rate, Isopentane is expected to volatilize rapidly from water sources into the atmosphere, where it will be degraded by photochemical reaction.

12.3 Bioaccumulative potential

The Log Kow value measured for Isopentane is 2.7 and it is expected to have a low potential for bioaccumulation.

12.4 Mobility in soil

Due to Isopentanes extreme volatility, air is the only environmental compartment in which this hydrocarbon will be found. In air, Isopentane can readily undergo photo degradation by reaction with hydroxyl radicals. The chemical half-life is approximately 4 days.

12.5 Results of PBT and vPvB assessment

No information available

12.6 Other adverse effects

No further details

Section 13. Disposal Considerations

13.1 Waste treatment methods

Recover and recycle product if possible. If recovery and recycling are not possible, isopentane may be disposed of by incineration.

Please follow all local, regional, national and international laws.

Section 14. Transport Information

14.1 UN number

1265

14.2 USDOT (United States Department of Transportation)(Domestic)

USDOT Proper Shipping Name: Pentanes

Hazard Classification: 3, Packing Group: 1

Label: Flammable Liquid

Placard: Flammable Liquid

14.3 IMO/IMDG (International Maritime Dangerous Goods)(Water)

IMO Proper Shipping Name: Pentanes

Hazard Classification: 3, Packing Group: 1

Label: Flammable Liquid

Special precautions for user: Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the "Marine Pollutant" notation [49 CFR 172.203(I)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].

14.4 IATA (International Air Transport Association)

Proper Shipping Name: Pentanes

Hazard Classification: 3, Packing Group: 1

Label: Flammable Liquid

14.5 ADR (Agreement on Dangerous Goods by Road (Europe))

Proper Shipping Name: Pentanes

Hazard Classification: 3, Packing Group: 1, Environmentally Hazardous

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Section 15. Regulatory Information

15.1 Clean Air Act

- This product neither contains nor was it manufactured with any class 1 or class 2 ozone depleting substances.
- Under Section 112 (r), 40 CFR Part 68, the threshold quantity for both n-pentane and isopentane is 10,000 lbs.

15.2 Emergency Planning and Community Tight-To-Know Act (EPCRA)

- Section 302 - This product does not contain any constituents that are classified as an extremely hazardous substance.
- Section 311/312 (Tier II) - This product is considered a fire hazard and an acute health hazard.
- Section 313 - This product contains no toxic chemicals.

15.3 California Office of Environmental Health Hazard Assessment

- Proposition 65 - This product contains none of the chemicals which may cause cancer or birth defects as listed in this legislation.

15.4 Coalition of Northeast Governors (CONEG)

- This product contains no lead, mercury, cadmium, or hexavalent chromium.

15.5 New Jersey Right-to-Know

- Normal pentane and isopentane both appear on this state's hazardous substance list.

15.6 Pennsylvania Right-to-Know

- Normal pentane and isopentane both appear on this state's hazardous substance list.

15.7 Toxic Substance Control Act (TSCA)

- All constituents of this product are listed in TSCA.

15.8 Other Inventories

- The constituents of this product are known to be listed on the following country inventories:
 - **Canada (DSL)**
 - **Japan (ENCS)**
 - **Australia (AICS)**
 - **Phillipines (PICCS)**
 - **China (IECSC)**
 - **Korea (KECI)**

Section 16. Other Information

Hazard Ratings:

GHS:

Health: 4
Flammability: 1
Reactivity: 5

NFPA:

Health: 1
Fire: 4
Reactivity: 0
Specific Hazard: None

HMIS:

Health: 1
Flammability: 4
Reactivity: 0

The above information is believed to be correct as of the date hereof. However no warranty of merchantability fitness for any use or any other warranty is expressed or is to be implied regarding the accuracy of this data, the results to be obtained from the use of the material, or the hazards connected with such use. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar, and since data made available subsequent to the data hereof may suggest modification of the information, we do not assume responsibility for the results of its use. This information is furnished on the condition that the person receiving it shall make his own determination as to the suitability of the material for his particular purpose and on the condition that he assume the risk of his use thereof.