

Material Safety Data Sheet



Pentane and Isomers

Section 1. Chemical product and company identification

Product Name : Pentane and Isomers
Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253
MSDS# : 001059
Date of Preparation/Revision : 4/3/2007.
In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Liquid.
Emergency overview : Danger!
HIGHLY FLAMMABLE LIQUID AND VAPOR.
CONTENTS UNDER PRESSURE.
HARMFUL IF SWALLOWED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
VAPOR MAY CAUSE FLASH FIRE.
Do not ingest. Keep away from heat, sparks and flame. Extremely hazardous liquid and vapor under pressure. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Potential acute health effects

Eyes : Irritating to eyes.
Skin : Irritating to skin.
Inhalation : Harmful by inhalation.
Ingestion : Toxic if swallowed.

Potential chronic health effects : **CARCINOGENIC EFFECTS** Not available.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS Not available.

Medical conditions aggravated by overexposure : Repeated or prolonged exposure is not known to aggravate medical condition.

See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

United States

Isopentane	78-78-4	100
Pentane	109-66-0	100

Exposure limits

ACGIH TLV (United States, 1/2004). Notes: 1998 Adoption.

TWA: 600 ppm 8 hour(s). Form: All forms

ACGIH TLV (United States, 9/2004). Notes: 1998 Adoption.

TWA: 600 ppm 8 hour(s). Form: All forms

NIOSH REL (United States, 6/2001).

CEIL: 1800 mg/m³ 15 minute(s). Form: All forms

CEIL: 610 ppm 15 minute(s). Form: All forms

TWA: 350 mg/m³ 10 hour(s). Form: All forms

TWA: 120 ppm 10 hour(s). Form: All forms

OSHA PEL (United States, 6/1993).

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Neopentane(2,2-Dimethylpropane) 463-82-1 100

TWA: 2950 mg/m³ 8 hour(s). Form: All forms
TWA: 1000 ppm 8 hour(s). Form: All forms
**ACGIH TLV (United States, 1/2004). Notes:
1998 Adoption.**
TWA: 600 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 breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- 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 immediately.

Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : The lowest known value is 283.85°C (542.9°F) (Pentane).
- Flash point** : The lowest known value is Closed cup: -57.15°C (-70.9°F). (Isopentane)
- Flammable limits** : The greatest known range is Lower: 1.4% Upper: 8% (Isopentane)
- 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** : Do not ingest. 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. Extremely hazardous liquid and vapor under pressure. Do not puncture or incinerate container. Wash thoroughly after handling.
- 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.
- 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. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product name

Exposure limits

United States

Isopentane

ACGIH TLV (United States, 1/2004). Notes: 1998 Adoption.

TWA: 600 ppm 8 hour(s). Form: All forms

Pentane

ACGIH TLV (United States, 9/2004). Notes: 1998 Adoption.

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TWA: 120 ppm 10 hour(s). Form: All forms

OSHA PEL (United States, 6/1993).

TWA: 2950 mg/m³ 8 hour(s). Form: All forms

TWA: 1000 ppm 8 hour(s). Form: All forms

Neopentane(2,2-Dimethylpropane)

ACGIH TLV (United States, 1/2004). Notes: 1998 Adoption.

TWA: 600 ppm 8 hour(s). Form: All forms

Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Boiling/condensation point** : The lowest known value is 27.8°C (82°F) (Isopentane). Weighted average: 31.96°C (89.5°F)
- Melting/freezing point** : May start to solidify at -128.88°C (-200°F) based on data for: Pentane. Weighted average: -144.69°C (-228.4°F)
- Critical temperature** : The lowest known value is 187.3°C (369.1°F) (Isopentane).
- Specific gravity** : Weighted average: 0.61 (Water = 1)
- Vapor density** : The highest known value is 2.5 (Air = 1) (Pentane). Weighted average: 2.49 (Air = 1)
- Evaporation rate** : The highest known value is 12.4 (Isopentane) Weighted average: 11.43 compared to Butyl acetate.

Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Extremely reactive or incompatible with oxidizing agents.

Section 11. Toxicological information

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Pentane	LD50	400 mg/kg	Oral	Rat

Chronic effects on humans : Contains material which causes damage to the following organs: lungs, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Other toxic effects on humans : No specific information is available in our database regarding the other toxic effects of this material for humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

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




Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

Section 13. Disposal considerations

Waste disposal : Do not puncture or incinerate container. 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	UN1265	Pentanes, Liquid	3	-		-
TDG Classification	UN1265	Pentanes, Liquid	3	-		<p>Explosive Limit and Limited Quantity Index 0</p> <p>Passenger Carrying Ship Index Forbidden</p> <p>Passenger Carrying Road or Rail Index 1</p>
Mexico Classification	UN1265	Pentanes, Liquid	3	-		-

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Section 15. Regulatory information

United States

- HCS Classification** : Compressed Gas
Flammable liquid
Toxic material
Target organ effects
- U.S. Federal regulations** : TSCA 4(a) final test rules: Pentane
TSCA 8(a) PAIR: Pentane
TSCA 8(b) inventory: Isopentane; Pentane; Neopentane(2,2-Dimethylpropane)
TSCA 12(b) one time export: Pentane
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: Isopentane; Pentane; Neopentane(2,2-Dimethylpropane)
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Isopentane: Fire hazard; Pentane: Fire hazard, Immediate (Acute) Health Hazard;
Neopentane(2,2-Dimethylpropane): Fire hazard, Sudden Release of Pressure
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: Isopentane; Pentane;
Neopentane(2,2-Dimethylpropane)
Clean air act (CAA) 112 regulated flammable substances: Isopentane; Pentane;
Neopentane(2,2-Dimethylpropane)
Clean air act (CAA) 112 regulated toxic substances: No products were found.
- State regulations** : Pennsylvania RTK: Isopentane: (generic environmental hazard); Pentane: (generic environmental hazard); Neopentane(2,2-Dimethylpropane): (generic environmental hazard)
Massachusetts RTK: Isopentane; Pentane; Neopentane(2,2-Dimethylpropane)
New Jersey: Isopentane; Pentane; Neopentane(2,2-Dimethylpropane)
- Canada**
- WHMIS (Canada)** : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
Class D-1B: Material causing immediate and serious toxic effects (TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
CEPA DSL: Isopentane; Pentane; Neopentane(2,2-Dimethylpropane)

Section 16. Other information

- Label Requirements** : HIGHLY FLAMMABLE LIQUID AND VAPOR.
CONTENTS UNDER PRESSURE.
HARMFUL IF SWALLOWED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
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

Pentane and Isomers

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.