

Material Safety Data Sheet



Cyclopentane

Section 1. Chemical product and company identification

Product Name	: Cyclopentane
Supplier	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Synonym	: cyclopentane (dot); pentamethylene
Material uses	: Other non specified industry: SOLVENT FOR CELLULOSE ETHERS; MOTOR FUEL; AZEOTROPIC DISTILLATION AGENT.
MSDS#	: 001124
Date of Preparation/Revision	: 11/2/2006.
In case of emergency	: 1-866-734-3438

Section 2. Hazards identification

Physical state	: Liquid. (COLORLESS WATERY LIQUID WITH A MILD, SWEET ODOR)
Emergency overview	: Danger! HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES DAMAGE TO THE FOLLOWING ORGANS: RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. VAPOR MAY CAUSE FLASH FIRE. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation.
Potential acute health effects	
Eyes	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Ingestion	: Practically non-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

cyclopentane 287-92-3 100

Exposure limits

ACGIH TLV (United States, 1/2005).

TWA: 1720 mg/m³ 8 hour(s). Form: All forms

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

NIOSH REL (United States, 12/2001).

TWA: 1720 mg/m³ 10 hour(s). Form: All

forms

TWA: 600 ppm 10 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 if symptoms appear.

Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 379.85°C (715.7°F)
- Flash point** : Closed cup: -7.15°C (19.1°F).
- Flammable limits** : Lower: 1.5%
- 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. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product name

United States

cyclopentane

Exposure limits

ACGIH TLV (United States, 1/2005).

TWA: 1720 mg/m³ 8 hour(s). Form: All forms

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

NIOSH REL (United States, 12/2001).

TWA: 1720 mg/m³ 10 hour(s). Form: All forms

TWA: 600 ppm 10 hour(s). Form: All forms

Section 9. Physical and chemical properties

- Physical state** : Liquid. (COLORLESS WATERY LIQUID WITH A MILD, SWEET ODOR)
- Odor** : LIKE GASOLINE; MILD, SWEET
- Molecular weight** : 70.15 g/mole
- Molecular formula** : C₅H₁₀
- Boiling/condensation point** : 49.25°C (120.7°F)
- Melting/freezing point** : -93.9°C (-137°F)
- Critical temperature** : 238.7°C (461.7°F)
- Specific gravity** : 0.74 (Water = 1)
- Vapor pressure** : 53.3 kPa (400 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>
cyclopentane	LD50	11400 mg/kg	Oral	Rat
	LD50	12800 mg/kg	Oral	Mouse

- Chronic effects on humans** : Causes damage to the following organs: upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

- Other toxic effects on humans** : Not considered to be toxic 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.

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Section 12. Ecological information

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

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1146	CYCLOPENTANE	3	II		Limited quantity Yes. Packaging instruction Passenger Aircraft Quantity limitation: 5 L Cargo Aircraft Quantity limitation: 60 L Special provisions IB2, T7, TP1
TDG Classification	UN1146	CYCLOPENTANE	3	II		Explosive Limit and Limited Quantity Index 1 Passenger Carrying Ship Index Forbidden Passenger Carrying Road or Rail Index 5
Mexico Classification	UN1146	CYCLOPENTANE	3	II		Limited quantity Yes. Packaging instruction Passenger

Cyclopentane

Aircraft
Quantity
limitation: 5 L

Cargo Aircraft
Quantity
limitation: 60 L

**Special
provisions**
IB2, T7, TP1

Section 15. Regulatory information

United States

HCS Classification : Flammable liquid
Target organ effects

U.S. Federal regulations : TSCA 8(a) PAIR: cyclopentane
TSCA 8(b) inventory: cyclopentane
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: cyclopentane
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
cyclopentane: Fire hazard
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: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

State regulations : Pennsylvania RTK: cyclopentane: (generic environmental hazard)
Massachusetts RTK: cyclopentane
New Jersey: cyclopentane

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CEPA DSL: cyclopentane

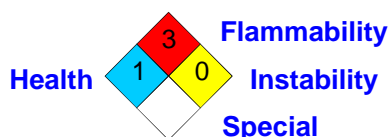
Section 16. Other information

Label Requirements : HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: 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		3
Reactivity		0
Personal protection		C

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



Notice to reader

Cyclopentane

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.