

Material Safety Data Sheet



Isooctane

Section 1. Chemical product and company identification

Product Name	: Isooctane
Supplier	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Synonym	: pentane, 2,2,4-trimethyl-; isobutyltrimethylmethane; 2,2,4-trimethylpentane
Material uses	: Other non specified industry: ORGANIC SYNTHESIS; SOLVENT; MOTOR FUEL; USED WITH NORMAL HEPTANE TO PREPARE STANDARD MIXTURE TO DETERMINE ANTI-KNOCK PROPERTY OF GASOLINE.
MSDS#	: 001096
Date of Preparation/Revision	: 3/7/2006.
In case of emergency	: 1-866-734-3438

Section 2. Hazards identification

Physical state	: Liquid. (COLORLESS MOBILE LIQUID)
Emergency overview	: Danger! HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES. VAPOR MAY CAUSE FLASH FIRE. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Eyes	: Slightly irritating to the eyes.
Skin	: Slightly irritating to the skin.
Inhalation	: Practically non-toxic by inhalation. Slightly irritating to the respiratory system.
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

2,2,4-trimethylpentane 540-84-1 100

Exposure limits

BMWA_MAK (Austria, 4/2004).

STEL: 5600 mg/m³ 4 times per shift, 15 minute(s). Form: All forms

STEL: 1200 ppm 4 times per shift, 15 minute(s). Form: All forms

TWA: 1400 mg/m³ 4 times per shift, 15 minute(s). Form: All forms

TWA: 300 ppm 4 times per shift, 15 minute(s). Form: All forms

SUVA (Switzerland, 2/2005). Notes: not temporary

Kurzzeitgrenzwerte: 2800 mg/m³ 15 minute(s). Form: All forms

Kurzzeitgrenzwerte: 600 ppm 15 minute(s).

Form: All forms

MAK: 1400 mg/m³ 8 hour(s). Form: All forms

MAK: 300 ppm 8 hour(s). Form: All forms

TRGS900 MAK (Germany, 8/2004).

Spitzenbegrenzung: 9600 mg/m³ 15 minute(s). Form: All forms

Spitzenbegrenzung: 2000 ppm 15 minute(s).

Form: All forms

TWA: 2400 mg/m³ 8 hour(s). Form: All forms

TWA: 500 ppm 8 hour(s). Form: All forms

Sotsiaalminister (Estonia, 9/2001).

STEL: 1400 mg/m³ 15 minute(s). Form: All forms

STEL: 300 ppm 15 minute(s). Form: All forms

TWA: 900 mg/m³ 8 hour(s). Form: All forms

TWA: 200 ppm 8 hour(s). Form: All forms

Työterveyslaitos (Finland, 4/2005).

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

STEL: 380 ppm 15 minute(s). Form: All forms

TWA: 1400 mg/m³ 8 hour(s). Form: All forms

TWA: 300 ppm 8 hour(s). Form: All forms

EüM-SzCsM (Hungary, 11/2002).

PEAK: 9400 mg/m³ 15 minute(s). Form: All forms

TWA: 2350 mg/m³ 8 hour(s). Form: All forms

Del Lietuvos Higienos Normos (Lithuania, 12/2001).

STEL: 1400 mg/m³ 15 minute(s). Form: All forms

STEL: 300 ppm 15 minute(s). Form: All forms

TWA: 900 mg/m³ 8 hour(s). Form: All forms

TWA: 200 ppm 8 hour(s). Form: All forms

LV Nat. Standardisation and Meteorological Centre (Latvia, 11/2004). Notes: As C

STEL: 300 mg/m³ 15 minute(s). Form: All forms

TWA: 100 mg/m³ 8 hour(s). Form: All forms

DOSH (Malaysia, 4/2000).

TWA: 1400 mg/m³ 8 hour(s). Form: All forms

TWA: 300 ppm 8 hour(s). Form: All forms

Instituto Português da Qualidade (Portugal, 7/2004).

TWA: 300 ppm 8 hour(s). Form: All forms

AFS (Sweden, 6/2005).

KTV: 1400 mg/m³ 15 minute(s). Form: All forms

KTV: 300 ppm 15 minute(s). Form: All forms

NGV: 900 mg/m³ 8 hour(s). Form: All forms

NGV: 200 ppm 8 hour(s). Form: All forms

Uradni list Republike Slovenije (Slovenia, 4/2005).

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Ministry of Health (VN, 10/2002).

STEL: 300 mg/m³ 15 minute(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** : Wash with soap and water. Get medical attention if irritation develops.
- 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** : 415 to 417.85°C (779 to 784.1°F)
- Flash point** : Open cup: -12.21°C (10°F).
- Flammable limits** : Lower: 1.1% Upper: 6%
- 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

United States

2,2,4-trimethylpentane

Exposure limits

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Ministry of Health (VN, 10/2002).
STEL: 300 mg/m³ 15 minute(s). Form: All forms

Section 9. Physical and chemical properties

Physical state	: Liquid. (COLORLESS MOBILE LIQUID)
Color	: COLORLESS
Odor	: LIKE GASOLINE
Molecular weight	: 114.26 g/mole
Molecular formula	: C ₈ H ₁₈
Boiling/condensation point	: 99.2°C (210.6°F)
Melting/freezing point	: -107.4°C (-161.3°F)
Specific gravity	: 0.6918 (Water = 1)
Vapor pressure	: 5.5 kPa (41 mm Hg) (at 20°C)
Vapor density	: 3.94 (Air = 1)
Evaporation rate	: 3.63 compared to Butyl acetate.

Section 10. Stability and reactivity

Stability and reactivity	: The product is stable.
Conditions of instability	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Incompatibility with various substances	: Highly reactive with oxidizing agents.

Section 11. Toxicological information

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
2,2,4-trimethylpentane	LD50	10000 mg/kg	Oral	Rat
	LC50	6156.8 ppm (1 hour(s))	Inhalation	Rat

Chronic effects on humans : Causes damage to the following organs: mucous membranes.

Other toxic effects on humans : Hazardous in case of skin contact (irritant).

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 : 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.

Isooctane**Section 14. Transport information**

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1262	Octanes	3	II		Reportable quantity 1000 lbs. (453.6 kg)
TDG Classification	UN1262	Octanes	3	II		Explosive Limit and Limited Quantity Index 1 Passenger Carrying Road or Rail Index 5
Mexico Classification	UN1262	Octanes	3	II		Reportable quantity 1000 lbs. (453.6 kg)

Section 15. Regulatory information**United States****HCS Classification**

: Flammable liquid
Target organ effects

U.S. Federal regulations

: TSCA 8(b) inventory: 2,2,4-trimethylpentane

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: 2,2,4-trimethylpentane

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: 2,2,4-trimethylpentane: Fire hazard, Delayed (Chronic) Health 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: 2,2,4-trimethylpentane: (generic environmental hazard)
Massachusetts RTK: 2,2,4-trimethylpentane
New Jersey: 2,2,4-trimethylpentane

Canada**WHMIS (Canada)**

: Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CEPA DSL: 2,2,4-trimethylpentane

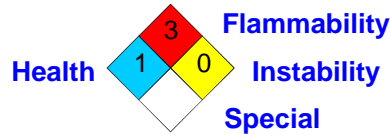
Section 16. Other information

Label Requirements : HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES.
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

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.