

SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Contact information

General

Distributor:

Parnell U.S.1, Inc.
 7015 College Blvd, Level 6
 Overland Park, KS 66211
 USA
www.parnell.com

Emergency telephone number

+1-800-887-2763 (24 hours)

Product identifier

Isoflurane

Synonyms

1-Chloro-2,2,2-Trifluoroethyl Difluoromethyl Ether

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

Inhalable anesthetic – (Prescription Drug to be Administered by Medical Professionals Only)

SECTION 2 - HAZARDS IDENTIFICATION

Label Elements

Hazard Pictogram



Signal word: Warning

Classification according to GHS Regulation

Physical Hazard: Not classified

Health Hazard:

Skin Irritation – Category 3
 Reproductive Toxicity – Category 2
 Eye Effects – Category 2A
 Acute Toxicity (Respiratory) – Category 3

Hazard statement(s):

| | |
|-------------|--|
| H316 | Causes mild skin irritation. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| H336 | May cause drowsiness or dizziness |
| H361 | Suspected of damaging fertility or the unborn child. |
| H373 | May cause damage to organs – repeat exposure |

Precautionary statement(s) Prevention:

| | |
|-------------|---|
| P202 | Do not handle until all safety precautions have been read and understood. |
| P233 | Keep container tightly closed |
| P260 | Do not breath vapors |
| P264 | Wash thoroughly after handling |
| P271 | Use in well ventilated area |
| P314 | Get immediate medical advice if you feel unwell |
| P501 | Dispose of contents/container to an approved waste disposal site |

| | |
|----------------------------|--|
| Classification: | Non-Dangerous when shipped via ground or water. Dangerous when shipped via air (see section 14) |
| Risk Phrases: | R36/37/38 Irritating to eyes, respiratory system, and skin R67 Vapors may cause dizziness R63(Xn) Possible Risk of Harm to the Unborn Child |
| Safety Phrases: | S2 Keep out of Reach of Children S3 Keep in a cool place S7 Keep Container tightly closed S9 Keep Container in a well-ventilated place S24/S25 Avoid Contact with Skin and Eyes S38 In case of insufficient ventilation, Wear Suitable respiratory equipment S51 Use only in well ventilated areas. |
| Emergency Overview: | CAUTION! Anesthetic Agent. Overexposure by inhalation to the vapors may cause temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, or loss of consciousness; they should be moved to an area of fresh air. Concentrations of anesthetic in the air would have to reach approximately 2-3 % before personnel would be expected to experience significant dizziness. Gross overexposure (> 20%) may possibly alter the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. |
| Exposure Routes: | Inhalation. Skin contact. Eye contact. Ingestion. |
| Inhalation | Practically non-toxic by inhalation. Cardiovascular effects may include fluctuations in heart rate, changes in blood pressure, chest pain. Respiratory effects may include shortness of breath, bronchospasms, laryngospasms, and respiratory depression. Gastrointestinal effects may include nausea, upset stomach, loss of appetite. Nervous system effects may include ataxia, tremor, disturbance of speech, lethargy, headaches, dizziness, blurred vision. |
| Skin Contact: | May cause skin irritation. |
| Eye Contact: | May cause eye irritation. |
| Ingestion: | Practically non-toxic if swallowed. No specific hazards other than therapeutic effects. See inhalation. |

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

| Chemical name | CAS-No. | Concentration (% w/w) |
|---------------|------------|-----------------------|
| Isoflurane | 26675-46-7 | >99 % |

SECTION 4 - FIRST AID MEASURES
Description of first aid measures

Immediate Medical Attention Needed If you feel unwell, seek medical advice.

| | |
|--------------------------|---|
| Eye Contact | In case of contact, immediately wash (irrigate) the eyes with large amounts of tepid potable water, occasionally lifting the lower and upper lids. Get medical attention immediately. |
| Skin Contact | In case of contact, remove contaminated clothing, and wash contaminated skin with soap and water. Seek medical attention if irritation is present. |
| Inhalation | If high concentrations are inhaled, immediately remove to fresh air. If not breathing, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible. |
| Ingestion | Rinse mouth. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities are swallowed, get medical attention immediately. |
| Note to Physician | Due to possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be considered only as a last resort in life-threatening emergencies. |

SECTION 5 - FIREFIGHTING MEASURES

| | |
|---|---|
| Extinguishing media | Use extinguishing media appropriate to surrounding fire conditions |
| Flammability/Explosivity | Use water spray to cool containers. Containers may rupture under fire conditions. Contains low boiling substance. |
| Unsuitable extinguishing media | None known. |
| Special protective equipment for fire-fighters | Fire fighters and others should wear NIOSH approved positive pressure self-contained breathing apparatus (SCBA) and turnout gear. |

SECTION 6 - ACCIDENTAL RELEASE MEASURES

| | |
|---|--|
| Personal precautions, protective equipment, and emergency procedures | If substance is released or spilled, take proper precautions to minimize exposure by using appropriate personal protective equipment (see Section 8). Area should be adequately ventilated. |
| Environmental precautions | See section 12. |
| Methods and material for containment and cleaning up | Small volumes of liquid anesthetic agents may readily evaporate at room temperatures and may dissipate before any clean up attempts are initiated. For large spills, provide adequate ventilation or evacuate area. Large quantities of anesthetic agents may cause sedative effects. Restrict personnel not donning protective equipment from areas of spills or leaks until clean up is complete. A sorbent designed for organic chemicals should be use for large spills. Spill pillows, vermiculite, and carbon-based sorbents are examples of suitable materials. Dike spill and prevent liquid from entering sewers, waterways or low areas. Sweep or scoop up and remove to a suitable container. Close container and dispose of container in accordance with federal, state, and local regulations. PPE (Inhalation): Depending on effectiveness of local ventilation, an air purifying respirator with organic vapor cartridge can be used to protect against vapors |

SECTION 7 - HANDLING AND STORAGE

| | |
|--------------------------------------|---|
| Precautions for safe handling | Contains low boiling substance. Wash thoroughly after handling. |
|--------------------------------------|---|

| | |
|--|---|
| Conditions for safe storage including any incompatibilities | Keep container tightly sealed. Store in a dry, cool, and well-ventilated place. Store at 25° C (77° F). |
| Materials to avoid | None Known |
| Packaging material | Unsuitable material: None known |
| Specific end use(s) | No information identified. |

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

| | |
|--|--|
| Note | Wash hands, face, and other potentially exposed areas immediately in the event of physical contact. |
| Control Parameters/Occupational Exposure Limit Values | Unknown. |
| Biological limit values | Unknown. |
| Exposure/Engineering controls | Investigate engineering techniques, process enclosures or local exhaust. Ventilation to keep airborne levels below recommended exposure limits. |
| Eye / Face Protection | Safety glasses, chemical splash goggles, face shield, or other full faced protection should be available for use if potential exists for exposure to splashes. |
| Respiratory protection | When working with small quantities in a well ventilated area, respiratory protection may not be required. If exposure levels exceed regulatory limits, implement a respiratory protection program that is in compliance with OSHA 29 CFR1910.134 or equivalent in other regions. Fire fighting requires the use of a self-contained breathing apparatus with full face piece and positive pressure mode. |
| Hand /Skin protection | Chemical resistant, impervious gloves should be used to avoid prolonged or repeated exposure. Wear a work uniform or laboratory coat. Additional body garments should be used based upon the tasks being performed. |
| Environmental Exposure Controls | Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release or spread of contamination and to prevent inadvertent contact by personnel. |
| Other protective measures | Wash hands in the event of contact with this substance, especially before eating, drinking, or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors). Decontaminate all protective equipment following use. |
| OSHA-Time Weighted Average: | None |
| OSHA-Short Term Exposure Limit: | None |
| OSHA-Ceiling Limits: | None |
| ACGIH-Time Weighted Average: | None |
| ACGIH-Short Term Exposure Limit: | None |
| ACGIH-Ceiling Limit Value: | None |
| NIOSH REL: | Ceiling 2 ppm (60 minutes) recommended exposure limit for halogenated waste anesthetic gas. |

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|---|--|
| Appearance | Clear liquid |
| Color | Colorless |
| Odor | No information identified. |
| Odor threshold | No information identified. |
| pH | Neutral |
| Melting point/freezing point | No information identified. |
| Boiling point | 48.5 deg C (119.3 deg F) at 760 mm Hg. |
| Flash point | No information identified. |
| Evaporation rate | > 1 |
| % Volatile by Volume | 100 WT% |
| Flammability (solid, gas) | No information identified. |
| Upper/lower flammability or explosive limits | No information identified. |
| Vapor pressure | 330 mm Hg at 25 deg C (77 deg F) |
| Vapor density | 6.3 |
| Relative density | 1.5 |
| Specific Gravity: | 1.5 (Water 1) |
| Water solubility | Slightly soluble |
| Solvent solubility | No information identified |
| Partition coefficient (<i>n</i>-octanol/water) | No information identified |
| Auto-ignition temperature | No information identified. |
| Decomposition temperature | No information identified. |
| Viscosity | No information identified. |
| Explosive properties | No information identified. |
| Oxidizing properties | No information identified. |
| Molecular formula | C ₃ -H ₂ -Cl-F ₅ -O |
| Molecular weight | 184.5 g/mole |

SECTION 10 - STABILITY AND REACTIVITY

| | |
|---|---|
| Reactivity | Material is stable under recommended storage conditions. |
| Chemical stability | Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerization will not occur. |
| Possibility of hazardous reactions | N/A |
| Conditions to avoid | N/A |
| Incompatible materials | Peroxides |
| Hazardous decomposition products | Irritating and/or toxic fumes under fire conditions. These products are halogenated compounds (hydrochloric and hydrofluoric acids may be liberated). |

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | | |
|----------------------------------|--|------------------------------------|
| Route of entry | May be exposed <i>via</i> ingestion, inhalation, or skin contact. | |
| Acute toxicity | LD₅₀ | 4770 mg/kg oral-rat |
| | LC₅₀ | 16300 ppm/3H inhalation / rat |
| | LD₅₀ | 4280 g/kg intraperitoneal-rat |
| | LD₅₀ | 5080 g/kg oral mouse |
| | LC₅₀ | 16800 ppm/3H inhalation-mouse |
| | LD₅₀ | 3030 mg/kg intraperitoneal - mouse |
| Cardiovascular effects: | May include fluctuation in heart rate, change in blood pressure, chest pain. | |
| Respiratory effects: | May include shortness of breath, bronchospasms, laryngospasms, respiratory depression. | |
| Gastrointestinal effects: | May include nausea, upset stomach, loss of appetite. | |
| Nervous System effects: | Ataxia, tremor, disturbance of speech, lethargy, headache, dizziness, blurred vision. | |
| Chronic Toxicity: | Target Organs- nervous system, heart, liver | |
| Carcinogenic Effects: | Not classified or listed by OSHA, IARC, NTP, EU, and ACGIH. No data is available on the product itself. | |
| Mutagenic Effects: | Not available | |
| Reproductive Toxicity: | No impairment to fertility based on animal data. May be fetotoxic at high doses based on animal data. Epidemiological studies suggest higher than normal incidences of problem pregnancies (particularly spontaneous abortions) among exposed personnel. | |
| FDA Pregnancy Category: | C | |

SECTION 12 - ECOLOGICAL INFORMATION

| | |
|-----------------------------|---|
| Ecotoxicity Effects: | No data available. |
| Bioaccumulation: | No data available. |
| Degradability: | Not Known. |
| Mobility: | Will preferentially want to partition to air. In water, will settle to bottom following water flow. Turbulence will enhance vaporization. |
| Atmospheric Effects: | Greenhouse gas. |

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods Dispose of wastes in accordance to prescribed federal, state, and local guidelines.

SECTION 14 - TRANSPORT INFORMATION

International Regulations

Land transport (DOT):

| | |
|--------------------|---|
| DOT: | Not regulated for inner packagings not exceeding 5.0 L (1.3 gallons) net capacity each. Regulated for inner packagings exceeding 5.0 L (1.3 gallons) net capacity each. |
| DOT shipping name: | Aviation regulated, N.O.S., (Isoflurane) |
| UN number: | UN3334 |
| Packing Group: | III |
| DOT hazard class: | 9 |

Air transport (ICAO-IATA):

UN Proper shipping name: Aviation regulated, N.O.S., (Isoflurane)
UN number: UN3334
Primary hazard class: 9
Packing group: III
Packing instruction: 964
Labels:



TDG (Canada): Not regulated.
IMO/IMDG: Not regulated.
ADR/RID: Not regulated.

SECTION 15 - REGULATORY INFORMATION

Safety, health, and environmental This SDS generally complies with the requirements listed under current regulations/legislation specific for guidelines in the USA, Australia, New Zealand, and Canada.
the substance or mixture

FDA: Regulated.
TSCA Inventory List: This product is exempt from TSCA.
Poisons Schedule: Schedule 4.
AICS Listing: Not listed.

SECTION 16 - OTHER INFORMATION

Revision Date November 11, 2025

Disclaimer The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions.

No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a pharmaceutical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.

END OF DOCUMENT