

# **MATERIAL SAFETY DATA SHEET**

**PRODUCT NAME:**  
**VetOne Isoflurane**

**AS SOLD BY VETONE**

A Service of

**COMPAS**

MATERIAL SAFETY DATA SYSTEMS

[www.compasmsds.com](http://www.compasmsds.com)



# Material Safety Data Sheet

MSDS Number: 1087151  
Revision date: 04/30/2007  
Print date: 04/30/2007

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Number: 1087151  
Product name: Isoflurane, USP  
Product code: NDC 10019-360-40, NDC 10019-360-60, NDC 10019-360-96, NDC 10019-360-64, NDC 10019-773-40, NDC 10019-773-60  
Synonyms: Forane  
Isoflurane  
Ethane  
Aerrane  
2-CHLORO-2-(DIFLUOROMETHOXY)-1,1,1-TRIFLUORO- (9CI)  
Isorrane  
Isovet  
Chemical Family: Anesthetic  
Product Type: Regulated Prescription Drug  
Container Information: 100 and 250 ml bottles  
Product Use: Pharmaceutical.

Supplier:  
BAXTER HEALTHCARE CORPORATION  
DEERFIELD, ILLINOIS 60015  
(800) 422-9837 or (847) 948-4770

Emergency telephone number: PROSAR: USA (888) 990-0996 OUTSIDE USA (615)917-6114  
CHEMTREC: USA (800) 424-9300 OUTSIDE USA (743)741-6089

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	UN Number:	Classification:
Isoflurane 26675-46-7	100	None	None

## 3. HAZARDS IDENTIFICATION

**Emergency overview:** Caution! This product has reasonable odor warning properties. If personnel smell vapors, or experience dizziness or headaches, they should be moved to an area with fresh air. Concentrations of anesthetic in the air would have to reach approximately 2-3% before people would be expected to experience significant dizziness.

**Principle routes of exposure:** Absorbed through skin. Eye contact. Inhalation. 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, respiratory depression). Gastrointestinal effects (may include nausea, upset stomach, loss of appetite). Nervous System effects (may include ataxia, tremor, disturbance of speech, lethargy, headache, dizziness, blurred vision).

### 3. HAZARDS IDENTIFICATION

<b>Ingestion:</b>	Practically non-toxic if swallowed. No specific hazards other than therapeutic effects. See inhalation.
<b>Skin contact:</b>	May cause skin irritation.
<b>Eye contact:</b>	May cause eye irritation.

### 4. FIRST AID MEASURES

<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Skin contact:</b>	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops.
<b>Ingestion:</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
<b>Eye contact:</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops.
<b>Notes to physician:</b>	See patient package insert in shipping carton for complete information.

### 5. FIRE FIGHTING MEASURES

<b>Suitable extinguishing media:</b>	Use foam or all purpose dry chemicals to extinguish.
<b>Special protective equipment for firefighters:</b>	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
<b>Specific methods:</b>	No information available
<b>Flash point:</b>	Not determined
<b>Autoignition temperature:</b>	Not available
<b>Flammable limits in air-lower (%):</b>	Not available
<b>Flammable limits in air-upper (%):</b>	Not available

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions:</b>	Depending on local ventilation, clean-up crews may need to wear a chemical cartridge respirator, with a cartridge for organic vapors. Use suitable protective equipment. Follow all fire fighting procedures.
<b>Environmental precautions:</b>	No information available.
<b>Methods for cleaning up:</b>	Small volumes of liquid anesthetic agents may evaporate readily at normal room temperatures, and may dissipate before any clean up attempts are initiated. For large spills, one or more bottles break, ensure adequate ventilation or evacuate area. Large volumes of anesthetic agents may cause sedative effects. Restrict persons not wearing protective equipment from areas of spills or leaks until clean up is complete. Large spills should be absorbed using a sorbent that is designed for clean up of organic chemicals. Spill pillows, vermiculite, and carbon-based sorbents are some suitable materials. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### **Handling:**

**Technical measures/precautions:** Wash thoroughly after handling.

### **Storage:**

**Technical measures/Storage conditions:** Keep container tightly closed. Keep in a dry, cool and well-ventilated place. Store between 15-30°C (59 to 86°F).

**Incompatible products:** No special restrictions on storage with other products.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

Component	OSHA- Time Weighted Average:	OSHA- Short Term Exposure Limit:	OSHA- Ceiling Limits	ACGIH- Time Weighted Average:	ACGIH- Short Term Exposure Limit:	ACGIH- Ceiling Limit Value:
Isoflurane 26675-46-7	None	None	None	None	None	None

NIOSH REL: Ceiling 2 ppm (60 minutes) recommended exposure limit for halogenated waste anesthetic gas.

**Engineering measures:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Well designed and maintained scavenging system on the anesthesia equipment (combined with a good general room ventilation) is important in limiting the exposures of all personnel.

### **Personal protective equipment:**

**Respiratory protection:** Perform exposure monitoring for this product and its components to ensure that employees are not exposed to levels greater than applicable regulatory limits. If exposure levels exceed regulatory limits, implement a respiratory protection program including respiratory protection that is in compliance with OSHA 29 CFR1910.134 (in the US) or equivalent regulation in other regions. Fire fighting requires the use of a self-contained breathing apparatus with full face piece and positive pressure mode.

**Hand protection:** Use chemical resistant, impervious gloves.

**Skin and body protection:** Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits).

**Eye protection:** Goggles, face shield, or other full-face protection if potential exists for direct exposure to aerosols or splashes.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:** Liquid  
**Appearance:** Aqueous solution  
**Color:** Clear, Colorless.  
**Odor:** Pungent. Ethereal. Musty.  
**pH:** Not applicable.  
**Molecular weight:** 184.5 g/mole  
**Boiling point/range:** 48.5°C (119.3°F)

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Melting point/range:</b>	Not available.
<b>Density:</b>	1.3002 g/cm <sup>3</sup> at 20°C (68°F)
<b>Vapor pressure:</b>	238 mmHg at 20°C (68°F)
<b>Evaporation rate:</b>	Not available.
<b>Solubility:</b>	0.275% in water.
<b>Partition coefficient (n-octanol/water):</b>	Not available.
<b>Viscosity:</b>	Not available.
<b>% Volatile by Volume:</b>	100% (w/w)

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under recommended storage conditions.
<b>Polymerization:</b>	Not applicable
<b>Hazardous decomposition products:</b>	These products are halogenated compounds (hydrochloric and hydrofluoric acids). Phosgene.
<b>Materials to avoid:</b>	Peroxides.

## 11. TOXICOLOGICAL INFORMATION

Component	LD50s and LC50s
Isoflurane 26675-46-7	Oral LD50 Mouse = 5080 µL/kg Oral LD50 Rat = 4770 µL/kg Inhalation LC50 Rat = 15300 ppm Inhalation LC50 Mouse = 16800 ppm

<b>Acute toxicity:</b>	Cardiovascular effects (may include fluctuations in heart rate, changes 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 (may include ataxia, tremor, disturbance of speech, lethargy, headache, dizziness, blurred vision).
<b>Chronic toxicity:</b>	Target Organs: Nervous system. Heart. Liver.
<b>Carcinogenic effects:</b>	Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. No drug related carcinogenic/tumorigenic effects based on animal data.
<b>Mutagenic effects:</b>	No data is available on the product itself.
<b>Reproductive toxicity:</b>	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.
<b>FDA Pregnancy Category</b>	C

## 12. ECOLOGICAL INFORMATION

### Environmental properties:

Component	Ecotoxicity - Water Flea Data	Fish Species Ecotoxicity	Ecotoxicity - Freshwater Algae Data	Ecotoxicity - Microtox Data
isoflurane 26675-46-7	None.	None.	None.	None.

**Ecotoxicity effects:** No data available

**Bioaccumulation:** No data available

## 13. DISPOSAL CONSIDERATIONS

**Waste Classification:** Due to volatility, recommend disposing as a hazardous waste.

**Waste from residues / unused products:** In accordance with local and national regulations.

## 14. TRANSPORT INFORMATION

### DOT:

**DOT shipping name:** Aviation regulated liquid n.o.s. (Isoflurane)  
**UN Number:** UN3334  
**DOT Packing Group:** None  
**DOT Hazard class:** 9

### TDG (Canada):

**TDG Proper shipping name:** Not Available.  
**TDG UN/NA Number:** Not Available.  
**TDG Packing Group:** Not Available.  
**TDG Hazard class:** Not Available.

### ADR/RID:

**ADR Official Transport Name:** Not Available.  
**ADR Proper shipping name:** Not Available.  
**ADR UN/NA number:** Not Available.  
**ADR Hazard Class:** Not Available.

### ICAO / IATA:

**IATA Proper shipping name:** Aviation regulated liquid n.o.s. (Isoflurane)  
**IATA UN NUMBER** UN3334  
**IATA Primary Hazard** 9  
**IATA Packing group:** None  
**ICAO ERG Code:** None

### IMO / IMDG:

**IMDG Proper Shipping Name:** Not Available.  
**IMDG Hazard Class and Division:** Not Available.  
**IMDG Packing Group:** Not Available.  
**IMDG Subsidiary Risks:** Not Available.

## 15. REGULATORY INFORMATION

### U.S. Regulations:

#### TSCA Inventory List -

The product is exempt from TSCA, it is FDA Regulated

#### OTHER REGULATIONS:

#### Japanese Inventory (ENCS)

This product does not comply with JPENCS

Component	Weight %	RCRA Status:	CERCLA Reportable Quantity:	CERCLA/SARA - 302 Ext. haz. substances:	Listed as Sara 313 title III:
Isoflurane	100	Not Listed	Not Listed	Not Listed	Not Listed

### STATE REGULATIONS:

Component	California Prop 65:	Minnesota Right-To - Know:	Florida Right-to-Know Reporting List:	Rhode Island Right-to-Know List:	Massachusetts Right-to-Know List:	Pennsylvania Right-to-Know:	New Jersey Right-to-Know:
Isoflurane	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed	sn 1057

### CANADIAN REGULATIONS:

#### Canada DSL Inventory List -

This product does not comply with DSL

#### EU EINECS List -

This product complies with EINECS

#### Risk Phrases:

NONE

#### Safety Phrases:

NONE

## 16. OTHER INFORMATION

### This data sheet contains changes from the previous version in section(s)?:

New MSDS format. Changes to Section 3. Changes to Section 6. Changes to Section 8. Changes to Section 11. Additional product codes.

### Additional information:

Refer to the OSHA "Anesthetic Gases: Guidelines For Workplace Exposures" for additional information.  
<http://www.osha.gov/dts/osta/anestheticgases/index.html#G>

### Prepared by:

Technology Resources, Baxter Healthcare Corporation

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.

Product id: 1087151

Product name: Isoflurane, USP

**16. OTHER INFORMATION**

End of safety data sheet: