

## 1. Identification

<b>Product identifier</b>	<b>Isobutyl Isobutyrate</b>	
<b>Other means of identification</b>		
<b>Catalog number</b>	1347835	
<b>Chemical name</b>	2-Methylpropanoic acid 2-methylpropyl ester	
<b>Recommended use</b>	Specified quality tests and assay use only.	
<b>Recommended restrictions</b>	Not for use as a drug. Not for administration to humans or animals.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Company name</b>	U. S. Pharmacopeia	
<b>Address</b>	12601 Twinbrook Parkway Rockville MD 20852-1790 US	
<b>Telephone</b>	RS Technical Services	301-816-8129
<b>Website</b>	www.usp.org	
<b>E-mail</b>	RSTECH@usp.org	
<b>Emergency phone number</b>	CHEMTREC within US & Canada	1-800-424-9300
	CHEMTREC outside US & Canada	+1 703-527-3887

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 3
<b>Health hazards</b>	Specific target organ toxicity, single exposure	Category 3 narcotic effects
<b>OSHA hazard(s)</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Warning
<b>Hazard statement</b>	Flammable liquid and vapor. May cause drowsiness or dizziness.
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting// equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wear protective gloves/eye protection/face protection.
<b>Response</b>	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. In case of fire: Use appropriate media for extinction.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	Static accumulating flammable liquid
<b>Supplemental information</b>	
<b>Hazard statement</b>	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Avoid release to the environment.

### 3. Composition/information on ingredients

#### Substance

#### Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Isobutyl Isobutyrate		97-85-8	100

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Dizziness. Drowsiness.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically.
<b>General information</b>	Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants.
<b>Special protective equipment and precautions for firefighters</b>	Wear suitable protective equipment.
<b>Fire-fighting equipment/instructions</b>	Water runoff can cause environmental damage. As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors. Ensure adequate ventilation. Wear appropriate personal protective equipment.
<b>Methods and materials for containment and cleaning up</b>	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Absorb spillage with suitable absorbent material. For waste disposal, see section 13 of the SDS. Wash spill site.

### 7. Handling and storage

<b>Precautions for safe handling</b>	As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly.
<b>Conditions for safe storage, including any incompatibilities</b>	Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

### 8. Exposure controls/personal protection

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	No exposure standards allocated.

<b>Appropriate engineering controls</b>	Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.
<b>Skin protection</b>	
<b>Hand protection</b>	Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.
<b>Other</b>	For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.
<b>Respiratory protection</b>	Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).
<b>Thermal hazards</b>	Not available.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Appearance</b>	Clear, colorless liquid.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Odor</b>	Sweet, fruity odor. Pineapple odor.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	-113.2 °F (-80.66 °C)
<b>Initial boiling point and boiling range</b>	299.48 °F (148.6 °C)
<b>Flash point</b>	101.00 °F (38.33 °C) Closed Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	1
<b>Flammability limit - upper (%)</b>	7.6
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.5773 kPa at 25 °C 0.577276 kPa at 25 °C
<b>Vapor density</b>	4.97 (air = 1)
<b>Relative density</b>	Not available.
<b>Solubility in water</b>	Very slightly soluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	810 °F (432.22 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Chemical family</b>	Ester.
<b>Molecular formula</b>	C8H16O2

<b>Molecular weight</b>	144.21
<b>Solubility (other)</b>	Soluble in alcohol and in ethers.
<b>Specific gravity</b>	0.85 at 25 °C

## 10. Stability and reactivity

<b>Reactivity</b>	No reactivity hazards known.
<b>Chemical stability</b>	Risk of ignition.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Heat, flames, and sparks.
<b>Incompatible materials</b>	Strong oxidizing agents. Alkali metals.
<b>Hazardous decomposition products</b>	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Based on available data, the classification criteria are not met.
<b>Inhalation</b>	Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Based on available data, the classification criteria are not met.
<b>Skin contact</b>	Due to lack of data the classification is not possible.
<b>Eye contact</b>	Due to lack of data the classification is not possible.
<b>Symptoms related to the physical, chemical, and toxicological characteristics</b>	Dizziness. Drowsiness. Headache. Nausea. Vomiting. Diarrhea.

<b>Acute toxicity</b>	Based on available data, the classification criteria are not met.
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Product	Species	Test Results
Isobutyl Isobutyrate (CAS 97-85-8)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Guinea pig	8520 mg/kg
	Rabbit	> 8600 mg/kg
<i>Oral</i>		
LD50	Mouse	> 6400 mg/kg
	Rat	> 6400 mg/kg

<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met.
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<b>Serious eye damage/eye irritation</b>	Due to lack of data the classification is not possible.
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### Local effects

Skin irritancy test with undiluted material  
Result: Slightly irritant  
Species: Guinea pig  
Test Duration: 24 hours

<b>Respiratory sensitization</b>	Due to lack of data the classification is not possible.
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<b>Skin sensitization</b>	Due to lack of data the classification is not possible.
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<b>Germ cell mutagenicity</b>	Due to lack of data the classification is not possible. Data from germ cell mutagenicity tests were not found.
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### Mutagenicity

Ames test in *S. typhimurium*  
Result: Negative.  
Gene mutation assay in *E. coli*  
Result: Negative.

<b>Carcinogenicity</b>	Due to lack of data the classification is not possible. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
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<b>Reproductive toxicity</b>	Due to lack of data the classification is not possible.
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<b>Specific target organ toxicity - single exposure</b>	Narcotic effects.
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<b>Specific target organ toxicity - repeated exposure</b>	Based on available data, the classification criteria are not met.
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<b>Aspiration hazard</b>	Due to lack of data the classification is not possible.
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## 12. Ecological information

### Ecotoxicity

Product		Species	Test Results
Isobutyl Isobutyrate (CAS 97-85-8)			
Acute			
Crustacea	EC50	Daphnia magna	55.8 mg/l, 48 hours, (static)
Aquatic			
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	12.54 mg/l, 96 hours
Persistence and degradability	No data is available on the degradability of this product.		
Bioaccumulative potential	Not available.		
Mobility in soil	Not available.		
Other adverse effects	Not available.		

## 13. Disposal considerations

Disposal instructions	This material and its container must be disposed of as hazardous waste. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Not available.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 F
Waste from residues / unused products	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

UN number	UN2528
UN proper shipping name	Isobutyl isobutyrate
Transport hazard class(es)	3
Subsidiary class(es)	Not available.
Packing group	III

### IATA

UN number	UN2528
UN proper shipping name	Isobutyl isobutyrate
Transport hazard class(es)	3
Subsidiary class(es)	-
Packaging group	III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

### DOT





## 15. Regulatory information

### US federal regulations

CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### Hazard categories

Immediate Hazard - No  
Delayed Hazard - No  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

No

#### SARA 311/312 Hazardous chemical

No

### Other federal regulations

#### Safe Drinking Water Act (SDWA)

Not regulated.

#### Food and Drug Administration (FDA)

Not regulated.

### US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## 16. Other information, including date of preparation or last revision

### Issue date

12-26-2013

### Version #

01

### Further information

Not available.

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