



Safety Data Sheet

The Dow Chemical Company

Product Name: Isobutyl Acetate, Urethane Grade

Revision Date: 2007/08/07

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The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Identification of the substance/preparation and of the company/undertaking

Product Name

Isobutyl Acetate, Urethane Grade

Use of the substance/preparation

Processing aid. Industrial solvent.

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
48674 Midland, MI
USA

Customer Information Number: 800-258-2436

For questions about this SDS, contact: SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

989-636-4400

Local Emergency Contact:

00 44 155 37 61 251

2. Hazards Identification

Highly flammable.

Repeated exposure may cause skin dryness or cracking.

3. Composition/information on ingredients

Component	Amount	Classification:	CAS #	EC #
Isobutyl acetate	>= 99.0 %	F: R11; R66	110-19-0	203-745-1

See Section 16 for full text of R-phrases.

4. First-aid measures

* Indicates a Trademark

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact: Wash skin with plenty of water.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants and antitussives may be of help. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Small spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before

reentering area. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Material may float on water and any runoff may create an explosion or fire hazard if ignited.

7. Handling and Storage

Handling

General Handling: Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Never use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically bond and ground all containers and equipment before transfer or use of material. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

Storage

Flammable mixtures may exist within the vapor space of containers at room temperature. Keep container closed. Minimize sources of ignition, such as static build-up, heat, spark or flame. Shelf life: Use within

Bulk

12 Months

Steel drums.

24 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Isobutyl acetate	Ireland OELV	TWA	700 mg/m3 150 ppm
	Ireland OELV	STEL	875 mg/m3 187 ppm
	ACGIH	TWA	150 ppm
	UK WEL	TWA	724 mg/m3 150 ppm
	UK WEL	STEL	903 mg/m3 187 ppm

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include:

Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C)

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Physical State	Liquid
Color	Colorless
Odor	Fruity
Flash Point - Closed Cup	16.7 °C <i>Tag Closed Cup ASTM D56</i>
Flash Point - Open Cup	27.8 °C <i>Tag Open Cup ASTM D1310</i>
Flammable Limits In Air	Lower: 1.3 %(V) <i>Literature</i> Upper: 10.5 %(V) <i>Literature</i>
Autoignition Temperature	421 °C <i>Literature</i>
Vapor Pressure	1.99 kPa @ 20 °C <i>Literature</i>
Boiling Point (760 mmHg)	118 °C <i>Literature</i> .
Vapor Density (air = 1)	4 <i>Literature</i>
Specific Gravity (H ₂ O = 1)	0.873 20 °C/20 °C <i>Literature</i>
Freezing Point	-99 °C <i>Literature</i>
Melting Point	No test data available
Solubility in Water (by weight)	0.658 % @ 20 °C <i>Literature</i>
pH	No test data available
Molecular Weight	116 g/mol
Octanol/Water Partition Coefficient	1.72 <i>Measured</i>
Evaporation Rate (Butyl Acetate = 1)	1.7
Dynamic Viscosity	0.7 mPa.s @ 20 °C <i>Literature</i>

10. Stability and Reactivity

Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Avoid static discharge. Avoid direct sunlight.

Incompatible Materials: Avoid contact with: Oxidizers. Strong acids. Strong bases.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.

11. Toxicological Information

Acute Toxicity

Ingestion

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

LD50, Rat 3,200 - 6,400 mg/kg

Eye Contact

May cause moderate eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin Contact

Brief contact may cause slight skin irritation with local redness. Prolonged contact may cause moderate skin irritation with local redness. May cause more severe response on covered skin (under clothing, gloves).

Skin Absorption

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit > 17,766 mg/kg

Inhalation

Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, 4 h, Rat 3,500 - 8,000 ppm

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Genetic Toxicology

In vitro genetic toxicity studies were negative.

12. Ecological Information

CHEMICAL FATE

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).

Henry's Law Constant (H): 4.47E-4 atm*m³/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): 1.72 Measured

Partition coefficient, soil organic carbon/water (Koc): 36 - 177 Estimated

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
> 98 %	21 d	OECD 301E Test

Theoretical Oxygen Demand: 2.20 mg/mg

ECOTOXICITY

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), static, 96 h: 62 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 24 h, immobilization: 168 - 342 mg/l

13. Disposal Considerations

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

14. Transport Information

ROAD & RAIL

Proper Shipping Name: ISOBUTYL ACETATE

Hazard Class: 3 **ID Number:** UN1213 **Packing Group:** PG II

Classification: F1

Kemler Code: 33

Tremcard Number: 30S1213

OCEAN

Proper Shipping Name: ISOBUTYL ACETATE

Hazard Class: 3 **ID Number:** UN1213 **Packing Group:** PG II

EMS Number: F-E,S-D

Marine pollutant.: No

AIR

Proper Shipping Name: ISOBUTYL ACETATE

Hazard Class: 3 **ID Number:** UN1213 **Packing Group:** PG II

Cargo Packing Instruction: 307

Passenger Packing Instruction: 305

INLAND WATERWAYS

Proper Shipping Name: ISOBUTYL ACETATE

Hazard Class: 3 **ID Number:** UN1213 **Packing Group:** PG II

Classification: F1

Kemler Code: 33

Tremcard Number: 30S1213

15. Regulatory Information

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

EC Classification and User Label Information**Hazard Symbol :**

F - Highly flammable.

Risk Phrases :

R11 - Highly flammable.

R66 - Repeated exposure may cause skin dryness or cracking.

Safety Phrases :

S16 - Keep away from sources of ignition - no smoking.

S23 - Do not breathe vapour.

S25 - Avoid contact with eyes.

S29 - Do not empty into drains.

S33 - Take precautionary measures against static discharges.

Chemical Name Isobutyl acetate
(EC Label) (EC # 203-745-1)

16. Other Information**Risk-phrases in the Composition section**

R11 Highly flammable.

R66 Repeated exposure may cause skin dryness or cracking.

Revision

Identification Number: 1169 / 1001 / Issue Date 2007/08/07 / Version: 3.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

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