Safety Data Sheet
The Dow Chemical Company

Product Name: Isopropyl Acetate, 99%

Revision Date: 2011/03/24
Print Date: 25 Mar 2011

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.

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

1.1 Product identifiers

Product Name
Isopropyl Acetate, 99%

Chemical Name: isopropyl acetate
CAS-No. 108-21-4
EC-No. 203-561-1
REACH Registration Number
01-2119537214-46-0001

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

Identified uses
Manufacture of substance, industrial. Formulation & (re)packing of substances and mixtures, industrial. Industrial use in coatings. Use in Cleaning Agents, industrial. Metal working fluids / rolling oils, industrial. Uses in Coatings, professional. Use in Cleaning Agents, professional. Metal working fluids / rolling oils, professional. Other Consumer Uses Use in Cleaning Agents, consumer.

1.3 Details of the supplier of the safety data sheet

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

Customer Information Number:	800-258-2436 SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:	989-636-4400
Local Emergency Contact:	00 31 115 69 4982

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification - REGULATION (EC) No 1272/2008

Flammable liquids	Category 2	H225	Highly flammable liquid and vapour.
Specific target organ toxicity - single exposure (Inhalation) (Narcotic effects.)	Category 3	H336	May cause drowsiness or dizziness.
Serious eye damage/eye irritation	Category 2	H319	Causes serious eye irritation.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

F	R11	Highly flammable.
Xi	R36	Irritating to eyes.
	R66	Repeated exposure may cause skin dryness or cracking.
	R67	Vapours may cause drowsiness and dizziness.

2.2 Label elements

Labelling - REGULATION (EC) No 1272/2008

Hazard pictograms

Signal Word: Danger

Hazard statements:

H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary Statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/ face protection.
P370/P378 In case of fire: Use water fog or fine spray, foam, carbon dioxide fire extinguishers, or dry chemical fire extinguishers for extinction.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
P403 + P235 Store in a well-ventilated place. Keep cool.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device.

2.3 Other Hazards
No information available.

Section 3. Composition/information on ingredients

3.1 Substance
This product is a substance.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008
CAS-No. 108-21-4 **EC-No.** 203-561-1 **Index** 607-024-00-6	01-2119537214-46	>= 99.0 - <= 100.0 %	isopropyl acetate	Flam. Liq., 2, H225 STOT SE, 3, H336 Eye cor/irr, 2, H319

CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC
CAS-No. 108-21-4 **EC-No.** 203-561-1 **Index** 607-024-00-6	>= 99.0 - <= 100.0 %	isopropyl acetate	F: R11; Xi: R36; R66; R67

For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
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.
Skin Contact: Wash skin with plenty of water.
Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

4.2 Most important symptoms and effects, both acute and delayed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed
Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids 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.
Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media

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

5.2 Special hazards arising from the substance or mixture

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.
Unusual Fire and Explosion Hazards: 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.

5.3 Advice for firefighters

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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. 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 personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Warn public of downwind explosion hazard.

6.2 Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Collect in suitable and properly labeled containers. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General Handling: Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Do not enter confined spaces unless adequately ventilated. Wash thoroughly after handling. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. 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. This product is a poor conductor of electricity and can become electrostatically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed.

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

Component	List	Type	Value
isopropyl acetate	Ireland OELV	STEL	200 ppm
	UK WEL	STEL	849 mg/m3 200 ppm
	ACGIH	TWA	100 ppm
	ACGIH	STEL	200 ppm
	UK WEL	STEL	849 mg/m3 200 ppm
	Ireland OELV	TWA	100 ppm

Derived No Effect Level (DNEL)

Workers

Potential Health Effects	Possible route(s) of exposure:	Value
Acute - systemic effects	Skin contact	Not available
Acute - systemic effects	Inhalation	840 mg/m3
Acute - local effects	Skin contact	Not available
Acute - local effects	Inhalation	Not available
Long-term - systemic effects	Skin Contact	43 mg/kg bw/day
Long-term - systemic effects	Inhalation	420 mg/m3
Long-term - local effects	Skin Contact	Not available
Long-term - local effects	Inhalation	420 mg/m3

Consumers

Potential Health Effects	Possible route(s) of exposure:	Value
Acute - systemic effects	Skin Contact	Not available
Acute - systemic effects	Inhalation	420 mg/m3
Acute - local effects	Skin contact	Not available
Acute - local effects	Inhalation	Not available
Long-term - systemic effects	Skin Contact	26 mg/kg bw/day
Long-term - systemic effects	Inhalation	50 mg/m3
Long-term - systemic effects	Ingestion	26 mg/kg bw/day
Long-term - local effects	Skin contact	Not available
Long-term - local effects	Inhalation	50 g/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value	Remarks
Fresh water	0.22 mg/l	
Marine water	0.02 mg/l	
Intermittent releases	0.6 mg/l	
Fresh water sediment	1.14 mg/kg d.w.	
Marine sediment	0.114 mg/kg d.w.	
Soil	0.32 mg/kg d.w.	
STP	190 mg/l	

8.2 Exposure controls

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: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. 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 ºC)
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 in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical State	Liquid.
Color	Colorless
Odor	Aromatic, Fruity, Sweet, pleasant
Odor Threshold	No test data available
pH	No test data available
Melting Point	Not applicable
Freezing Point	-73.55 °C *Literature*
Boiling Point (760 mmHg)	88.65 °C *Literature* .
Flash Point - Closed Cup	2.2 °C *Tag Closed Cup ASTM D56*
Flash Point - Open Cup	10.5 °C *Tag Open Cup ASTM D1310*
Evaporation Rate (Butyl Acetate = 1)	5 *Literature*
Flammability (solid, gas)	Flammable liquid
Flammable Limits In Air	**Lower**: 1.8 %(V) *Literature* **Upper**: 8.0 %(V) *Literature*
Vapor Pressure	6,070 Pa @ 20 °C *Literature*
Vapor Density (air = 1)	3.5 @ 20 °C *Literature*
Specific Gravity (H2O = 1)	0.872 20 °C/20 °C *Literature*
Solubility in water (by weight)	3 % @ 20 °C *Literature*
Partition coefficient, n-octanol/water (log Pow)	1.18 *Estimated.*
Autoignition Temperature	460 °C
Decomposition Temperature	No test data available
Dynamic Viscosity	0.525 mPa.s *Literature*
Kinematic Viscosity	0.62 mm2/s *Literature*
Explosive properties	Not explosive
Oxidizing properties	No

9.2 Other information

Molecular Weight	102.13 g/mol *Literature*
Molecular Formula	CH3 COO CH (CH3) 2
Henry's Law Constant (H)	2.78E-04 atm*m3/mole; 25 °C Measured

Section 10. Stability and Reactivity

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Thermally stable at recommended temperatures and pressures.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible Materials: Avoid contact with: Alkali metal hydroxides. Nitric acid. Sodium hydroxide. Strong oxidizers.

10.6 Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity
Ingestion
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.
LD50, Rat, male 6,750 mg/kg
LD50, Rat, female 6,145 - 12,500 mg/kg
Aspiration hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.
Dermal
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
LD50, Rabbit, male > 17,436 mg/kg
Inhalation
In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects.
LC50, 8 h, Vapor, Rat, female 50,600 mg/m3

Eye damage/eye irritation
May cause severe eye irritation. May cause severe corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness. Prolonged or repeated exposure may cause defatting of the skin leading to drying or flaking of skin.

Sensitization
Skin
Did not cause allergic skin reactions when tested in guinea pigs.
Respiratory
No relevant data found.

Repeated Dose Toxicity
Based on the metabolite(s): Isopropanol In animals, effects have been reported on the following organs: Liver. Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans. Observations in animals include: Lethargy.

Chronic Toxicity and Carcinogenicity
Based on the metabolite(s): Isopropanol Did not cause cancer in laboratory animals.

Developmental Toxicity
Based on the metabolite(s): Isopropanol Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Toxicity
Based on the metabolite(s): Isopropanol In animal studies, did not interfere with reproduction.

Genetic Toxicology
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), static, 96 h: 400 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, Artemia salina, static, 48 h, mobility: 110 mg/l
LC50, water flea Daphnia magna, 48 h: > 1,000 mg/l
Toxicity to Micro-organisms
IC50; bacteria, 16 h: > 1,000 mg/l

12.2 Persistence and Degradability

Material is expected to be readily biodegradable.
Stability in Water (1/2-life):
267 d; 25 °C; pH 8
27 d; 25 °C; pH 9
2.7 d; 25 °C; pH 10
Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
61 %	72 %	76 %	

12.3 Bioaccumulative potential
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): 1.18 Estimated.

12.4 Mobility in soil
Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient, soil organic carbon/water (Koc): 14.8 Estimated.
Henry's Law Constant (H): 2.78E-04 atm*m3/mole; 25 °C Measured
Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
23.2 %	35.9 %	0 %	40.7 %	0.31 %

12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects
This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Section 13. Disposal Considerations

13.1 Waste treatment methods

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.

Section 14. Transport Information

ROAD & RAIL
Proper Shipping Name: ISOPROPYL ACETATE
Hazard Class: 3 **ID Number:** UN1220 **Packing Group:** PG II

Tremcard Number: 30S1220
Environmental Hazard: No

OCEAN
Proper Shipping Name: ISOPROPYL ACETATE
Hazard Class: 3 **ID Number:** UN1220 **Packing Group:** PG II
EMS Number: F-E,S-D
Marine pollutant.: No

AIR
Proper Shipping Name: ISOPROPYL ACETATE
Hazard Class: 3 **ID Number:** UN1220 **Packing Group:** PG II
Cargo Packing Instruction: 364
Passenger Packing Instruction: 353
Environmental Hazard: No

INLAND WATERWAYS
Proper Shipping Name: ISOPROPYL ACETATE
Hazard Class: 3 **ID Number:** UN1220 **Packing Group:** PG II
Tremcard Number: 30S1220
Environmental Hazard: No

Section 15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

European Inventory of Existing Commercial Chemical Substances (EINECS)
The components of this product are on the EINECS inventory or are exempt from inventory requirements.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

Section 16. Other Information

Hazard statement in the composition section

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Risk-phrases in the Composition section

R11	Highly flammable.
R36	Irritating to eyes.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Revision

Identification Number: 1207 / 1001 / Issue Date 2011/03/24 / Version: 4.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

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