

Material Safety Data for: Isobutyl Acetate

1. PRODUCT IDENTIFICATION

Name	2-methyl-1-propyl acetate
Synonyms	isobutyl acetate; acetic acid, isobutyl ester; acetic acid, 2-methylpropyl ester
CAS#	110-19-0
Product Uses	solvent in coatings, mfg. of perfumes, flavourings & pharmaceuticals

2. INGREDIENTS

	%	TWAEV / TLV ppm / mg/m ³	LD ₅₀ ORAL	(mg/kg) SKIN	LC ₅₀ ppm INHALATION
2-methyl-1-propyl acetate	100%	150 / 700	4800	>5000	8000

3. (a) HAZARDS SUMMARY

Hazards, Quick Guide: flammable liquid, heavy vapour may travel, distant ignition and flashback are possible, slightly irritating to skin and eyes

Canada – WHMIS

Key:

B2

B 2 – Flash Point <38°C, **B 3** – Flash Point >38°C & <93°C

D 1 – Immediately Toxic, **D 2** – Chronic Toxicity

C – Oxidising Substance, **E** – Corrosive

U.S.A. – HMIS

Key:

Health – 1, Fire – 2, Reactivity – 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

3. (b) HAZARDS – TOXICITY

Effects, Acute Exposure

Skin Contact	may be slightly irritating
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	may be slightly irritating; will not damage
Inhalation	may be slightly irritating to respiratory system; high vapour concentration may cause nausea,
Ingestion	headache, dizziness, drowsiness may be slightly irritating to mouth and throat – not a route of industrial exposure

Effects, Chronic Exposure

General	prolonged exposure may cause skin drying
Sensitising	not a sensitiser in humans or animals
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect in humans or animals
Mutagen	no known effect on humans or animals
Synergistic With	not known
LD ₅₀ (oral)	13,400mg/kg (rat), 4765mg/kg (rabbit)
LD ₅₀ (skin)	above 17,400mg/kg (rabbit) & above 5000mg/kg (rabbit)
LC ₅₀ (inhalation)	approximately 8000ppm (rat)

Please ensure that this MSDS is given to, and explained to people using this product.

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4. FIRST AID

- SKIN: Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.
 EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
 INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If breathing stops, administer artificial respiration and seek medical aid promptly.
 INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless liquid with sweet, "fruity" odour
Odour Threshold	1.1ppm
Vapour Pressure	13mmHg / 1.73kPa (20°C / 68°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	1.5
Vapour Density (air = 1)	4
Boiling Range	117°C / 243°F
Freezing Point	-99°C / -146°F
Specific Gravity	0.871 (20/20°C)
Water Solubility	7grams per litre (20°C)
Also soluble in	most organic solvents
Viscosity	centipoise (25°C / 77°F)
pH	none – (<i>does not liberate hydrogen ions when dissolved</i>)
Conversion Factor	1ppm = 4.74mg/m ³
Molecular Weight	116grams per mole

6. FLAMMABILITY & FIRE FIGHTING

Flash Point	18°C / 64°F (closed cup)
Autoignition Temperature	421°C / 790°F
Flammable Limits	1.3% – 10.5% – <i>limits may be narrower than this</i>
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Fire Fighting Precautions	polymer foam, dry chemical, water fog or spray to cool, product floats on water – water jet spreads flames; fire fighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge on agitation or pumping

7. STABILITY / REACTIVITY

Dangerously Reactive With	strong oxidising agents
Also Reactive With	strong acids react producing heat – may cause ignition; attacks certain elastomers
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	isobutyl alcohol and acetic acid
Sensitive to Mechanical Impact	no

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8. PROTECTIVE EQUIPMENT / EXPOSURE CONTROL

ACGIH TLV	150ppm / 713mg/m ³
OSHA PEL	150ppm / 700mg/m ³
STEL	not listed
Ventilation	mechanical ventilation may be required to maintain airborne titre below TWAEV
Hands	probably not required; “Barrier”, or “Silver Shield” gloves may be worn – <i>consult supplier to confirm suitability; Do NOT use vinyl (PVC), nitrile, “Viton” or neoprene!</i>
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

9. HANDLING & STORAGE

Store in a cool, dry environment, away from sources of ignition, heat and oxidising agents. Use non-sparking bronze or aluminium hand tools. All electrical and mechanical equipment (including lighting, switchgear and forklift trucks) used with or around this product must be explosion-proof.

Although this product cannot retain a static charge on agitation or transfer from one container to another, it is prudent to ground or electrically bond both the source container and the receiving container, and transfer pump before transferring contents. Avoid splashing by ensuring that the product nozzle is below the surface in the receiving container. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator with an organic vapour cartridge.

Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

10. SPILL PROCEDURES

Serious Fire Potential: blanket spill with foam as a precaution against accidental ignition. Take extreme care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal

11. DISPOSAL

Waste Disposal	do not flush to sewer , recycle solvent if possible, may be incinerated in approved facility
Containers	Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. Pails must be vented and thoroughly dried prior to crushing and recycling. IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years. <i>Never cut, drill, weld or grind on or near this container, even if empty</i>

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12. ENVIRONMENTAL INFORMATION

Bioaccumulation	this product is not a bioaccumulator
Biodegradation	this product degrades readily and rapidly in the presence of oxygen; 60% & 81% biodegradation in 5 & 20 days; 23% & 37% in 5 & 20 days in salt water
Abiotic Degradation	this product reacts with atmospheric hydroxyl radicals; estimated half-life in air is 70 hours
Mobility in soil, water	this product is sufficiently water soluble to move moderately rapidly in soil and water
Aquatic Toxicity	
LC ₅₀ (Fish, 48hr)	101-190mg/litre (leuciscus idus)
EC ₅₀ (Crustacea, 24hr)	1200mg/litre (artemia salina), 168-342mg/litre (daphnia magna)

13. TRANSPORT REGULATIONS

Canada TDG	PIN	UN-1213
	Shipping Name	isobutyl acetate
	Class	3
	Packing Group	II
U.S.A. 49 CFR	PIN	UN-1213
	Shipping Name	isobutyl acetate
	Class	3
	Packing Group	II
Marine Pollutant		not a marine pollutant

14. EMERGENCY INFORMATION

Canada	Call CANUTEC (collect)	(613) 996-6666
U.S.A.	Call CHEMTREC	(800) 424-9300

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory (EC# 203-745-1)

Immediately Dangerous to Life or Health: 1300 ppm

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 150 ppm (700 mg/cu m).

NIOSH Recommendations*: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 150 ppm (700 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 150 ppm. Excursion Limit Recommendation: Excursions in worker exposure levels may exceed three times the TLV-TWA for no more than a total of 30 min during a work day, and under no circumstances should they exceed five times the TLV-TWA, provided that the TLV-TWA is not exceeded.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Isobutyl acetate is produced, as an intermediate or final product, by process units covered under this subpart.

Clean Water Act Requirements: Designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

CERCLA Reportable Quantities: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802; in the Washington D.C. metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3.b).

FDA Requirements: Isobutyl acetate is a food additive permitted for direct addition to food for human consumption, as long as 1) the quantity added to food does not exceed the amount reasonably required to accomplish its intended physical, nutritive, or other technical effect in food, and 2) when intended for use in or on food it is of appropriate food grade and is prepared and handled as a food ingredient. Isobutyl acetate synthetic flavoring substances & adjuvants may be safely used in food in accordance with the following conditions ... They consist of one or more of the following /substances including isobutyl acetate/ used alone or in combination with flavoring substances generally recognized as safe in food, or regulated by an appropriate section in this part.

16. PREPARATION INFORMATION

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577

With data from RTECS, Haz. Substance Data Base, Cheminfo (CCOHS), IUCLID Datasheets (European Chem. Substance Info. System), & others, as available

Preparation Date: **June 2006** Revision Date: **June 2009**

File Name: **IBAce**

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