



Safety Data Sheet

1. PRODUCT IDENTIFICATION

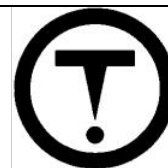
Name	Butyl Acetate
Synonyms	1-butyl acetate, <i>n</i> -butyl acetate, <i>normal</i> -butyl acetate, butyl ethanoate, acetic acid, <i>n</i> -butyl ester
CAS #	123-86-4
Europe EC #	204-658-1
Material Use	solvent for coatings, inks, adhesives; flavourings

2. HAZARDS

Quick Guide: flammable liquid, heavy vapour travels, distant ignition & flashback possible, irritating to eyes; central nervous system depressant

Canada – WHMIS
Key:

B 2, D 2B
B 2 – Flash Point <38°C, *B 3* – Flash Point >38°C & <93°C,
D 1 – Immediately Toxic, *D 2* – Chronic Toxicity, *E* – Corrosive



GHS Classification



GHS Category (flammable liquid, Cat 2) (toxic by inhalation, Cat 2)

Signal Words DANGER (fire) WARNING (*oral*), DANGER (*inhalation*), WARNING (*skin*), <no signal word> (*enviro.*)

Hazard Statements highly flammable liquid & vapour (H225), may be harmful if swallowed (H303), fatal if inhaled (H330), causes mild skin irritation (H316), harmful to aquatic life (H402)

3. COMPOSITION

	%	TWAEV / TLV mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
1-Butyl Acetate	100%	150 / 710	3200	17,600	1265*

* see NOTE in Part 11

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.

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5. FIRE FIGHTING & FLAMMABILITY

Flash Point	22°C / 72°F (closed cup); <i>Eastman gives 27°C / 81°F & Dow gives 29°C / 84°F</i>
Autoignition Temperature	425°C / 797°F
Flammable Limits	1.3% – 7.6%
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	alcohol-resistant foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge on agitation or pumping

6. ACCIDENTAL RELEASE MEASURES

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

7. 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 does not 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 or explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Avoid creating or breathing product vapour. If vapour forms in use, install 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.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWA _{EV}	150ppm / 710mg/m ³	Ontario STEV	200ppm / 950mg/m ³
ACGIH TLV	150ppm / 713mg/m ³	STEL	200ppm / 950mg/m ³
OSHA PEL	150ppm / 710mg/m ³	PEL-STEL	200ppm / 950mg/m ³
Ventilation	mechanical ventilation may be required to control airborne titre to regulated limits		
Hands	“Barrier” or “Silver Shield” gloves – <i>other types may also be used; consult supplier to confirm suitability</i>		
Eyes	safety glasses with side shields – <i>always protect the eyes</i>		
Clothing	no special protective clothing required		

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless liquid with strong “over-ripe banana” odour
Odour Threshold	below 7ppm – <i>reliably detectable below TWA_{EV} / TLV</i>
Vapour Pressure	10mmHg / 1.33kPa (20°C / 68°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	1
Vapour Density (air = 1)	4
Boiling Range	126°C / 259°F
Freezing Point	-78°C / -108°F
Specific Gravity	0.882 (20/20°C)

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9. PHYSICAL PROPERTIES, cont'd

Water Solubility	7grams/litre (20°C / 68°F)
Also soluble in	most organic solvents
Log _{OW} (octanol/water partition)	1.78
Viscosity	0.7centipoise (20°C / 68°F)
pH	none – (does not liberate hydrogen ions when dissolved)
Conversion Factor	1ppm = 4.74mg/m ³
Molecular Weight	116grams/mole

10. REACTIVITY

Dangerously Reactive With	strong oxidising agents, strong alkalies may cause vigorous hydrolysis
Also Reactive With	strong acids cause decomposition (hydrolysis); attacks PVC, ABS, polyurethane, “Viton”, neoprene, nitrile, and other polymers/elastomers
Stability	stable; will not polymerize
Decomposes in Presence of	moisture, acidity, alkalinity
Decomposition Products	acetic acid & butyl alcohol
Sensitive to Mechanical Impact	no

11. TOXICITY**Effects, Acute Exposure**

Skin Contact	drying to skin; not an irritant
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	liquid mildly irritating; vapour irritating >300ppm – severely so >3000ppm
Inhalation	may irritate 300ppm, severely irritating above 3000ppm; dizziness, drowsiness, intoxication, headache, nausea may also occur at above 3000ppm
Ingestion	may irritate mouth & throat; large amounts (100ml+) may cause symptoms like inhalation

Effects, Chronic Exposure

General	prolonged or repeated application may cause dermatitis as a consequence of skin drying
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)	10,770mg/kg (rat), 6000&7100mg/kg (mouse), 4700mg/kg (guinea pig), 3200&7400mg/kg (rabbit)
LD ₅₀ (skin)	17,600mg/kg (rabbit)
LC ₅₀ (inhalation)	390* & 2000ppm (rat), 1265ppm (mouse), 14,350ppm (cat), 14,135ppm (guinea pig)

*NOTE: This value is very low compared to other data and is probably unreliable. The CCOHS “Cheminfo” database states (in reference to the 2000ppm (rat) LC₅₀): “Other experiments designed to replicate the vapour LC₅₀ did not result in any mortality, even at concentrations of 6867ppm.” In other words, LC₅₀ values of 2000ppm and below may be due to experimental error.

NOTE: The oral LD₅₀ varies by a factor of 3 between species and may be a poor guide to human toxicity.

12. ECOLOGICAL INFORMATION

Bioaccumulation	rapidly eliminated from the body and is not a bioaccumulator
Biodegradation	degrades readily in the presence of oxygen; biodegradation of 55-85% in 20days & 98% in 28days
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 1.5–4 days
Mobility in soil, water	sufficiently water soluble to move moderately rapidly in soil and water
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	18mg/litre (Pimephelas promelas), 100mg/litre (Lepomis macrochirus), 62mg/litre (Leuciscus idus), 185mg/litre (Menidia beryllinia)
EC ₅₀ (Crustacea, 24hr)	150mg/litre (Artemia salina), 72.8 & 205mg/litre (Daphnia magna)
EC ₅₀ (Algae)	675mg/litre (Scenedesmus subspicatus)
EC ₅₀ (Bacteria)	959mg/litre (Pseudomonas subspicatus)

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13. DISPOSAL

Waste Disposal Containers **do not flush to sewer**, recycle solvent if possible, may be incinerated in approved facility
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.
Never cut, drill, weld or grind on or near this container, even if empty

14. TRANSPORT CLASSIFICATION

Canada TDG	PIN	UN - 1123
AND	Shipping Name	butyl acetates
U.S.A. 49 CFR	Class & Packing Group	3 (II)
Marine Pollutant		not a marine pollutant
ERAP Required		NO

**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
Europe Classification	Flammable Harmful – irritating, causes drowsiness
Europe Risk Phrases	R: 10, 66, 67 – Flammable. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.
Europe Safety Phrases	S: 25 – Avoid contact with the eyes.

USA Regulations:

Immediately Dangerous to Life or Health: 1700 PPM

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 150 ppm (710 mg/cu m). Vacated 1989 OSHA PEL TWA 150 ppm (710 mg/cu m); STEL 200 ppm (950 mg/cu m) is still enforced in some states.

NIOSH Recommendations: Recommended Exposure Limit: 10 Hour Time-Weighted Average: 150 ppm (710 mg/cu m). Recommended Exposure Limit: 15 Minute Short-Term Exposure Limit: 200 ppm (950 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 150 ppm; 15 min Short Term Exposure Limit (STEL): 200 ppm.

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. n-Butyl acetate is produced, as an intermediate or final product, by process units covered under this subpart.

State Drinking Water Guidelines: Florida 2,500 ug/l

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15. REGULATIONS, cont'd

Clean Water Act Requirements: Butyl acetate is 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. This designation includes any isomers and hydrates, as well as any solutions and mixtures containing 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. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3.b).

TSCA Requirements: A testing consent order is in effect for n-butyl acetate for health effects testing. FR citation: 1/23/95.

FDA Requirements: n-Butyl acetate is an indirect food additive for use only as a component of adhesives. n-Butyl acetate is a food additive permitted for direct addition to food for human consumption as a synthetic flavoring substance and adjuvant in accordance with the following conditions: a) they are used in the minimum quantity required to produce their intended effect, and otherwise in accordance with all the principles of good manufacturing practice, and 2) they consist of one or more of the following, used alone or in combination with flavoring substances and adjuvants generally recognized as safe in food, prior-sanctioned for such use, or regulated by an appropriate section in this part.

16. OTHER INFORMATION

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Data from RTECS, HSDB (Haz. Substance Data Base), Cheminfo (CCOHS), IUCLID Datasheets (ESIS – European Chem. Substance Info. System), & others.

*Preparation Date: **March 2004** Revision Date: **April 2007, April 2010, April 2013***

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