



Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name	Benzyl Alcohol
Synonyms	benzoyl alcohol, phenylmethyl alcohol, alpha-hydroxytoluene, & others
CAS #	100-51-6
Europe ELINCS/EINECS #	202-859-9
Material Use	textile dyeing, solvent, chemical synthesis, flavourings, perfumes, cosmetics, etc.

2. HAZARDS

Quick Guide: combustible liquid, heavy vapour can travel, distant ignition and flashback are possible, eye irritant

Canada – WHMIS

Key:

B 3, D 2B (barely meets the requirements for “combustible”)
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, **F** – Reactive Substance

U.S.A. – HMIS

Key:

Health – 1/2, Fire – 1, Reactivity – 0
 0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

3. COMPOSITION

	%	TWAEV / TLV mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
Benzyl Alcohol	100%	not listed	1040	2000	above 114

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. FIRE FIGHTING & FLAMMABILITY

Flash Point	93°C / 200°F (closed cup)
Autoignition Temperature	436°C / 817°F
Flammable Limits	1.3% – 13%
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Fire Fighting Precautions	foam, dry chemical, water fog, water spray only to cool & dilute, water jet spreads flames; firefighters must wear SCBA
Static Discharge	may accumulate a static charge, but high flash point makes ignition unlikely

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6. ACCIDENTAL RELEASE MEASURES

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, shovel & store in closed containers for recycling or disposal

7. HANDLING & STORAGE

Store in a cool, dry environment, away from sources of ignition, heat, acids, and oxidising agents. Empty containers may contain a flammable vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use. *Replace drum, pail or IBC cap prior to moving the container!* If prolonged storage is anticipated, flush container headspace with dry nitrogen to prevent oxidation.

Avoid breathing product vapour or mist. Use with adequate ventilation.

Never cut, drill, weld or grind on or near this container. Avoid prolonged 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 TWAEV	not listed	
ACGIH TLV	not listed	ACGIH WEEL 10ppm / 44mg/m ³
OSHA PEL	not listed	
Ventilation	mechanical ventilation may be required to control airborne titre; depending on handling procedures	
Hands	"Viton" gloves may be worn – <i>other types may also protect; 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 mild, pleasant "mothball" odour
Odour Threshold	5.5ppm
Vapour Pressure	0.15mmHg / 0.02kPa (25°C/ 77°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	~0.01
Vapour Density (air = 1)	3.7
Boiling Point	206°C / 403°F
Freezing Point	-15°C / 5°F
Specific Gravity	1.045 (20/20°C)
Water Solubility	35 grams per litre
- in other solvents	most organic solvents; limited solubility in aliphatic hydrocarbons
Viscosity	5.8centipoise (20°C)
pH	none – <i>does not yield hydrogen ions in solution</i>
Conversion Factor	1ppm = 4.41mg/m ³
Molecular Weight	108

10. REACTIVITY

Dangerously Reactive With	strong oxidising agents
Also Reactive With	corrodes iron, steel & aluminium when heated (<i>actual temperature for this action not given</i>)
Chemical Stability	stable; will not polymerise – <i>may polymerise explosively above 100°C in presence of both acid & iron</i>
Decomposes in Presence of	~50% sulphuric acid at about 180°C – reaction may be violent
Decomposition Products	gradual decomposition to benzoic acid & benzaldehyde
Mechanical Impact	not sensitive

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11. TOXICITY

Effects, Acute Exposure

Skin Contact	mild irritant; <i>local anaesthetic action may help mask irritation</i> ; a small number of people develop an
Skin Absorption	itchy rash or reaction which looks like hives (with rapid recovery) – <i>this is not an immune response</i>
Eye Contact	slight; toxic effects unlikely by this route
Inhalation	severely irritating, appears not to damage eyes
Ingestion	mist or vapour causes irritation; headache, dizziness, drowsiness, intoxication & nausea may occur likely to cause headache, dizziness, drowsiness, intoxication & vomiting; <i>not a route of industrial exposure</i>

Effects, Chronic Exposure

General	prolonged or repeated exposure may cause dermatitis; may damage liver and kidneys
Sensitising	although a very few reports of sensitisation exist, benzyl alcohol is not considered a sensitiser
Carcinogen/Tumorigen	not known to be a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect on humans; reproductive toxin in animals <i>but accompanied by maternal toxicity</i>
Mutagen	not known to be a mutagen or teratogen in humans or animals
Synergistic With	aromatic hydrocarbons and chlorinated hydrocarbons
LD ₅₀ (oral)	1230 - 3100mg/kg (rat, <i>several tests</i>), 1040, 1360 & 1580mg/kg (mouse), 1040mg/kg (rabbit), 2500mg/kg (guinea pig)
LD ₅₀ (skin)	2000mg/kg (rabbit), 5250mg/kg (guinea pig)
LC ₅₀ (inhalation)	above 114ppm (rat)

NOTE: LD₅₀ & LC₅₀ test data vary widely between species & independent tests on the same species. Relevance to human toxicity cannot be assumed.

12. ECOLOGICAL INFORMATION

Bioaccumulation	readily metabolised and will not bioaccumulate; half life in mammals is ~90 minutes
Biodegradation	biodegrades readily & rapidly in the presence of oxygen – 60-90% in 5 days; anaerobic degradation is 100% complete in 1-2 weeks
Abiotic Degradation	reacts with atmospheric hydroxyl (OH) radicals; estimated ½-life in air is 17 hours
Mobility in soil, water	water soluble; moves readily through soil and the water column
Marine Toxicity	
LC ₅₀ (Fish, 96hr)	646mg/litre (Leuciscus idus, 48hr), 10mg/litre (Lepomis macrochirus), 15mg/litre (Menidia beryllina), 460mg/litre (Pimephales promelas)
LC ₅₀ (Crustacea, 24hr)	55 & 400mg/litre (Daphnia magna, 24hr)
EC ₅₀ (Algæ)	90mg/litre (Anabaena cylindrica), 35mg/litre (Anabena variabilis), 2600mg/litre (Hematococcus pluvialis), 79mg/litre (Scenedesmus quadricauda)
EC ₅₀ microorganisms	50 & 71mg/litre (Photobacterium phosphoreum)

13. DISPOSAL

Waste Disposal	do not flush to sewer ; recycle if possible; incinerate in approved facility with flue gas monitoring & scrubbing
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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14. TRANSPORT CLASSIFICATION

Canada TDG	PIN	not regulated for transport
AND	Shipping Name	not regulated for transport
U.S.A. 49 CFR	Class & Packing Group	not regulated for transport
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

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. Benzyl alcohol is produced, as an intermediate or a final product, by process units covered under this subpart.

State Drinking Water Guidelines: Florida 2,100 ug/L

FIFRA Requirements: As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Benzyl alcohol is found on List D. Case No: 4013; Pesticide type: insecticide, fungicide; Case Status: OPP is reviewing data from the pesticide's producers regarding its human health and/or environmental effects, or OPP is determining the pesticide's eligibility for reregistration and developing the RED document.; Active ingredient (AI): benzyl alcohol; AI Status: The active ingredient is no longer contained in any registered products ... "cancelled."

FDA Requirements: Benzyl alcohol 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. Benzyl alcohol is an indirect food additive for use only as a component of adhesives. Drug products containing certain active ingredients offered over-the-counter (OTC) for certain uses. A number of active ingredients have been present in OTC drug products for various uses ... However, based on evidence currently available, there are inadequate data to establish general recognition of the safety and effectiveness of these ingredients for the specified uses: benzyl alcohol is included in male genital desensitizer drug products. Drug products containing certain active ingredients offered over-the-counter (OTC) for certain uses. A number of active ingredients have been present in OTC drug products for various uses, as described below. However, based on evidence currently available, there are inadequate data to establish general recognition of the safety and effectiveness of these ingredients for the specified uses: benzyl alcohol is included in poison ivy, poison oak, and poison sumac drug products. Drug products containing certain active ingredients offered over-the-counter (OTC) for certain uses. A number of active ingredients have been present in OTC drug products for various uses, as described below. However, based on evidence currently available, there are inadequate data to establish general recognition of the safety and effectiveness of these ingredients for the specified uses: benzyl alcohol is included in pediculicide drug products. Local anesthetic active ingredients. The active ingredient of the product consists of any of the following when used in the concentration or within the concentration range established for each ingredient: Benzyl alcohol 1 to 4 percent is included on this list.

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.

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