2-Naphthyl acetate

sc-213861

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
2-Naphthyl acetate

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
EMERGENCY:
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C12-H10-O2, "2-naphthol, acetate", "acetic acid 2-naphthyl ester", beta-acetoxynaphthalene, 2-acetoxynaphthalene, "2-naphthalenol, acetate", "beta-naphthol acetate", "esterase reagent"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	0		
Body Contact:	3		
Reactivity:	1		
Chronic:	0		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Risk of serious damage to eyes.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material has NOT been classified as "harmful by ingestion".
This is because of the lack of corroborating animal or human evidence.

EYE

■ If applied to the eyes, this material causes severe eye damage.

SKIN

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

■ The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
■ Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

■ Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified using animal models); nevertheless exposure by all routes should be minimized as a matter of course.
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
beta-naphthyl acetate	1523-11-1	95
NOTE: Commercial product may contain		
2-naphthol	135-19-3	0.2

Section 4 - FIRST AID MEASURES

SWALLOWED

· Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN

■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable.
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available.

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Combustible solid which burns but propagates flame with difficulty.
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
Combustion products include: carbon monoxide (CO), carbon dioxide (CO_2), other pyrolysis products typical of burning organic material.
May emit corrosive fumes.

FIRE INCOMPATIBILITY
■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up all spills immediately.
· Avoid breathing dust and contact with skin and eyes.
MAJOR SPILLS
■ Moderate hazard.
· CAUTION: Advise personnel in area.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.
Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
· Do NOT cut, drill, grind or weld such containers.
· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS
· Lined metal can, Lined metal pail/drum
· Plastic pail.
Glass container.

STORAGE REQUIREMENTS
· Store in original containers.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

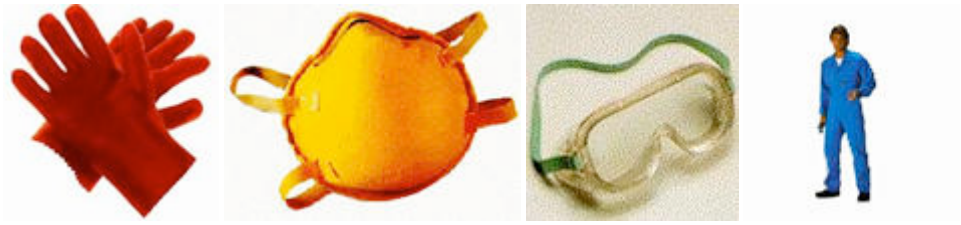
Source	Material	TWA ppm	TWA mg/m^3	STEL ppm	STEL mg/m^3	Peak ppm	Peak mg/m^3	TWA F/CC	Notes

Canada - Ontario Occupational Exposure Limits	beta-naphthyl acetate (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)		
Canada - British Columbia Occupational Exposure Limits	beta-naphthyl acetate (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)		
Canada - Ontario Occupational Exposure Limits	beta-naphthyl acetate (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	beta-naphthyl acetate (Particulates not otherwise regulated Respirable fraction)		5		
US - California Permissible Exposure Limits for Chemical Contaminants	beta-naphthyl acetate (Particulates not otherwise regulated Respirable fraction)		5		(n)
US - Oregon Permissible Exposure Limits (Z-1)	beta-naphthyl acetate (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	beta-naphthyl acetate (Particulates not otherwise regulated, Respirable dust)		5		
US - Oregon Permissible Exposure Limits (Z-1)	beta-naphthyl acetate (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5		Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different

					than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	beta-naphthyl acetate (Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)	5			
Canada - Prince Edward Island Occupational Exposure Limits	beta-naphthyl acetate (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)	10			See Appendix B current TLV/BEI Book

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

• particulate.

EYE

· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
· polychloroprene
· nitrile rubber
· butyl rubber
· fluorocaoutchouc
· polyvinyl chloride
Gloves should be examined for wear and/ or degradation constantly.

OTHER

· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS

· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
· Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.

State	Divided solid	Molecular Weight	186.21
Melting Range (°F)	156- 158	Viscosity	Not Applicable
Boiling Range (°F)	Not applicable.	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapour Pressure (mmHG)	Not applicable.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	Not applicable.
Volatile Component (%vol)	Not applicable.	Evaporation Rate	Not applicable

APPEARANCE

Off-white crystalline powder; does not mix well with water. Mixes with dioxane.

log Kow 2.84 2-Naphthol has a water solubility of 0.6 - 0.8 g/l, a vapor pressure of 1.4 Pa and a measured log Kow in the range of 2.01 - 2.84. 2-Naphthol is readily biodegradable as shown in a MITI test according to OECD 301C with non-adapted inoculum. A biodegradation of 68 % after 14 days was found. There is no information on the degradation kinetic. The measured log Kow in the range of 2.01 to 2.84 does not indicate a significant potential for bio- or geoaccumulation. With a fugacity model (Mackay I) the following distribution can be predicted hydrosphere: 83 %, atmosphere: 8 %, soil: 4.5 % and sediment: 4.5 %. The hydrosphere is therefore the target compartment for this substance. In water solution, photodegradation has been observed, but the half-life under environmental conditions was not estimated. The calculated half-life due to photochemical-oxidative degradation in the atmosphere by OH-radicals is about 2 hours.

Material	Value

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

■ Product is considered stable and hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

■ Avoid storage with reducing agents.
· Avoid strong acids, bases.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

beta-naphthyl acetate

TOXICITY AND IRRITATION

BETA-NAPHTHYL ACETATE:
■ No significant acute toxicological data identified in literature search.
2-NAPHTHOL:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 1960 mg/kg	Skin (rabbit): 500 mg/24h; Mild
	Eye (rabbit): 100 mg; Moderate

■ For 2-naphthol
In workers exposed to 2-naphthol an increased incidence of dermatitis, conjunctivitis, and rhinitis have been reported in poorly documented studies. In addition, changes in kidney function, and an increased incidence in chronic hepatitis and impairment of the nervous system were reported from workers who were also exposed to a variety of other chemicals
Acute toxicity: 2-Naphthol can be absorbed through the skin. Rapid conjugation with glucuronide and sulphate in the liver and renal excretion of the unchanged and conjugated forms seems to be the principal mechanism of elimination. The acute oral LD50 in rats was

determined as 1320 mg/kg bw in a study following OECD TG 401. Clinical signs included reduced activity, accelerated breathing, closure of eyes, nasal discharge and diarrhoea, and at exposure levels near to or exceeding the LD50 also tumbling, reduced reflexes and seizures.
The inhalation 4-hour-LC50 in rats was determined as 2200 mg/m3 (aerosol; OECD TG 403). Clinical signs included irregular breathing, reduced activity, impaired motility and reflexes, nasal discharge, corneal opacity and diarrhea.
2-Naphthol was not irritating to the skin of rabbits in a test performed according to OECD TG 404, but caused serious damage to the eyes of rabbits in a study in accordance with OECD TG 405 (corneal vascularization/opacity).
2-Naphthol is a skin sensitiser, based on results from a guinea pig maximization test [OECD TG 406]. An increased incidence of contact dermatitis in exposed workers is reported in an old and poorly documented study.
Repeat dose toxicity: After repeated administration to rats by the oral route for 28 days, there were indications of a possible effect on the adrenals in both sexes at dose levels of 50 mg/kg bw/day and above (increased relative and absolute adrenal weights). At 150 mg/kg bw/day, an increase in serum creatinine and changes in serum electrolytes were found in males, indicating an effect on the kidneys.
Poorly documented studies in dogs and rats involving repeated administration by the subcutaneous and inhalation route showed effects on the liver and kidneys. Concentration dependent disturbances in blood clotting and functional impairment of the liver and kidney with accompanying histopathological effects occurred at 10.1 and 1.35 mg/m3.
Genotoxicity: 2-Naphthol was not mutagenic in several Ames tests both in the absence and in the presence of metabolic activation, even at cytotoxic concentrations. Inconsistent results have been observed in bacterial DNA repair tests, but it did not induce unscheduled DNA synthesis in rat hepatocytes in a test performed according to current standards. 2-Naphthol was not tested for its potential to induce chromosomal aberrations in vitro. In an in vivo micronucleus assay with 2-naphthol, no evidence of genotoxicity was found. These data show that 2-naphthol is not mutagenic in vivo.
Carcinogenicity: There are no adequate data available for the evaluation of the carcinogenic potential of 2-naphthol.
Reproductive toxicity: 2-Naphthol was tested for its reproductive toxicity in a one-generation study according to OECD TG 415. The administration of the test substance had no adverse effect on the reproductive abilities of the parental generation.
Developmental toxicity: No teratogenic effects were observed (NOEL for male reproductive toxicity: 160 mg/kg bw/day (highest tested dose); NOELs for female reproductive toxicity and for toxicity to the offspring: 40 mg/kg bw/day each). (160 mg/kg bw/day may suppress nursing; reduced body weights and reduced viability was seen in the offspring at 160 mg/kg bw/day). The LOEL for systemic toxicity in males was 10 mg/kg bw/day (salivation), the NOEL for systemic toxicity in females was 10 mg/kg bw/day (nasal discharge, reduced food consumption, decreased locomotor activity and salivation at 40 mg/kg bw/day).
The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

CARCINOGEN

PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen	
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC

Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
beta-naphthyl acetate	LOW	No Data Available	LOW	MED
2-naphthol	HIGH	No Data Available	LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.
¦ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.
· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

beta-naphthyl acetate (CAS: 1523-11-1) is found on the following regulatory lists;
"Canada Non-Domestic Substances List (NDSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Regulations for ingredients

2-naphthol (CAS: 135-19-3) is found on the following regulatory lists;
"Canada Domestic Substances List (DSL)","Canada Ingredient Disclosure List (SOR/88-64)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","OECD Representative List of High Production Volume (HPV) Chemicals","US CAA (Clean Air Act) - HON Rule - Organic HAPs (Hazardous Air Pollutants)","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA High Production Volume Program Chemical List","US EPA Master Testing List - Index I Chemicals Listed","US Harmonized Tariff Schedule - Intermediate Chemicals for Dyes Appendix","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances
Substance CAS Suggested codes beta- naphthyl acetate 1523- 11- 1 Mut3; R68 Xn; R22 2- naphthol 135- 19- 3 Mut3; R68 Xn; R22

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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