

Material Safety Data Sheet

Date Printed: 15/DEC/2004

Date Updated: 07/DEC/2004

Version 1.5

According to 91/155/EEC

1 - Product and Company Information

Product Name	NAPHTHALENE, 99+%, SCINTILLATION GRADE
Product Number	184500
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
NAPHTHALENE	91-20-3	202-049-5	601-052-00-2
Formula	C10H8		
Molecular Weight	128.17 AMU		
Synonyms	Albocarbon * Camphor tar * Mighty 150 * Mighty RD1 * Moth balls * Moth flakes * Naftalen (Polish) * Naphthalene (ACGIH:OSHA) * Naphthalin * Naphthaline * Naphthene * NCI-C52904 * RCRA waste number U165 * Tar camphor * White tar		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Harmful if swallowed. Limited evidence of a carcinogenic effect.
Very toxic to aquatic organisms, may cause long-term adverse
effects in the aquatic environment.
Carc. Cat.3

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give
artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for
at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of
water for at least 15 minutes. Assure adequate flushing by
separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is

conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Mechanical exhaust required. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	20 MG/M3
Poland		NDSch	75 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	50 mg/m3
		10 ppm

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	50 mg/m3
		10 ppm

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	50 mg/m3
		10 ppm

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level	50 mg/m3
		10 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	50 mg/m3
		10 ppm

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	53 mg/m3
		10 ppm
OEL	STEL	80 mg/m3
		15 ppm

Remarks: Chemical Hazard Alert Notice

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

 9 - Physical and Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	218 °C	760 mmHg
MP/MP Range	77 °C	
Flash Point	80 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	526 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 0.9 %	
	Upper: 5.9 %	
Vapor Pressure	0.03 mmHg	25 °C
SG/Density	N/A	
Partition Coefficient	Log Kow: 3.3	
Viscosity	N/A	
Vapor Density	4.4 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	31.8 mN/m	100 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Other Solvents: ALCOHOL, ACETATE, ETHER	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: QJ0525000

ACUTE TOXICITY

LDLO
Oral
Child
100 mg/kg

LD50
Oral
Rat
490 mg/kg

LC50
Inhalation
Rat
> 340 mg/m3
1H

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity).

LD50
Skin
Rat
> 2500 mg/kg

LD50
Oral
Mouse
533 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Etosis. Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory depression.

LD50
Intraperitoneal
Mouse
150 MG/KG

LD50
Subcutaneous
Mouse
969 MG/KG
Remarks: Behavioral:Tremor.

LD50
Intravenous

Mouse
100 MG/KG

LD50
Skin
Rabbit
> 20000 mg/kg

LD50
Oral
Guinea pig
1200 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Change in motor activity (specific assay).

IRRITATION DATA

Skin
Rabbit
495 mg
Remarks: Open irritation test

Eyes
Rabbit
100 mg
Remarks: Mild irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Naphthalene is retinotoxic and systemic absorption of its vapors above 15ppm, may result in cataracts, optical neuritis, injuries to the cornea, and marked eye irritation. Ingestion of large quantities have been reported to cause severe hemolytic anemia and hemoglobinuria.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN INFORMATION

Eyes. Blood. Kidneys. Lungs. Central nervous system.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Rat
Route of Application: Subcutaneous
Exposure Time: 12W
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Blood:Lymphomas including Hodgkin's disease.
Tumorigenic Effects: Uterine tumors

Mouse
Route of Application: Inhalation
Exposure Time: 6H/2Y

Result: Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax,
or Respiration:Tumors.

IARC CARCINOGEN LIST

Rating: Group 2B

CHRONIC EXPOSURE - MUTAGEN

Human
30 MG/L
Cell Type: lymphocyte
Micronucleus test

Hamster
30 MG/L
Cell Type: ovary
Cytogenetic analysis

Hamster
15 MG/L
Cell Type: ovary
Sister chromatid exchange

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 4500 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death,
e.g., stunted fetus). Specific Developmental Abnormalities:
Other developmental abnormalities.

Species: Rat
Dose: 5925 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (1-15D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal
system. Specific Developmental Abnormalities: Cardiovascular
(circulatory) system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse
Dose: 2400 MG/KG
Route of Application: Oral
Exposure Time: (7-14D PREG)
Result: Effects on Newborn: Live birth index (# fetuses per
litter; measured after birth). Effects on Newborn: Viability
index (e.g., # alive at day 4 per # born alive).

CMR CAT.: Carc. Cat.3

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Algae
Time: 24 h
Value: 33 mg/l

Test Type: EC50 Daphnia

Species: Daphnia magna
Time: 48 h
Value: 1 - 3.4 mg/l

Test Type: LC50 Fish
Time: 96 h
Value: 0.12 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 0.9 - 9.80 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 1 - 6.5 mg/l

ADDITIONAL ECOLOGICAL INFORMATION

BOD5: 0 %
COD: 22 %

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1334
Class: 4.1
PG: III
Proper Shipping Name: Naphthalene, refined

IMDG

UN#: 1334
Class: 4.1
PG: III
Proper Shipping Name: Naphthalene, refined
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1334
Class: 4.1
PG: III
Proper Shipping Name: Naphthalene, refined
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 601-052-00-2
INDICATION OF DANGER: Xn N
Harmful. Dangerous for the environment.
R-PHRASES: 22 40 50/53

Harmful if swallowed. Limited evidence of a carcinogenic effect. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 2 36/37 46 60 61

Keep out of the reach of children. Wear suitable protective clothing and gloves. If swallowed, seek medical advice immediately and show this container or label. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 3

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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