NAPHTHALENE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
NAPHTHALENE

OTHER NAMES

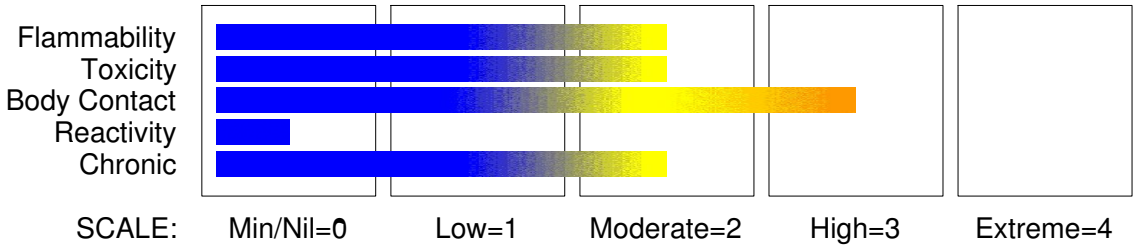
C10H8, "tar camphor", naphthalin, mothballs, "moth flake balls", naphthene, "misspelling as napthalene"

PROPER SHIPPING NAME
NAPHTHALENE, CRUDE
NAPHTHALENE, REFINED
NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED

PRODUCT USE
SHALL not be supplied in block, ball disc or pellet form for domestic use unless enclosed in a device which prevents removal of contents. NHMRC.
Used in organic synthesis; in the manufacture of products such as insecticides, fungicides, explosives, cutting fluids, lubricants and dyestuffs. Production of phthalic anhydride.

SUPPLIER
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4
Carcinogen Category 2
Chronic Aquatic Hazard Category 1
Flammable Solid Category 2
Respiratory Irritation Category 3
Serious Eye Damage Category 1
Skin Sensitizer Category 1

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H335 H228 H302 H317 H351 H318 H410
May cause respiratory irritation
Flammable solid
Harmful if swallowed
May cause allergic skin reaction
Suspected of causing cancer
Causes serious eye damage
Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

Do not handle until all safety precautions have been read and understood.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Contaminated clothing should not be allowed out of the workplace.
Obtain special instructions before use.
Use personal protective equipment as required.
Keep away from heat/sparks/open flame - No smoking.
Wear protective gloves and eye/face protection.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment

Response

Wear eye/face protection.
If eye irritation persists, get medical advice/attention.
If skin irritation or rash occurs, seek medical advice/attention.
If exposed or concerned: Get medical attention advice.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN: Gently wash with plenty of soap and water.

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Specific treatment: refer to Label or MSDS.
Wash contaminated clothing before reuse.
Immediately call a POISON CENTER or doctor/physician.

Storage
Store locked up.

Disposal
Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
naphthalene	91-20-3	100

Section 4 - FIRST AID MEASURES

SWALLOWED
For advice, contact a Poisons Information Centre or a doctor.
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
· For advice, contact a Poisons Information Centre or a doctor.
Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
· Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.
· Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.
NOTE: Wear a protective glove when inducing vomiting by mechanical means.
· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
Avoid giving milk or oils.

EYE
If this product comes in contact with the eyes:
· Wash out immediately with fresh 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.
· If pain persists or recurs seek medical attention.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.
· Flush skin and hair with running water (and soap if available).
· Seek medical attention in event of irritation.
In case of burns:
· Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth.
· DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury.

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· DO NOT break blister or remove solidified material.
· Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain.
· For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth.
· DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances.
· Water may be given in small quantities if the person is conscious.
· Alcohol is not to be given under any circumstances.
· Reassure.
· Treat for shock by keeping the person warm and in a lying position.
· Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.

INHALED

· If dust is inhaled, remove from contaminated area.
· Encourage patient to blow nose to ensure clear breathing passages.
· Ask patient to rinse mouth with water but to not drink water.
· Seek immediate medical attention.
· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.
· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
· Transport to hospital, or doctor.

NOTES TO PHYSICIAN

for naphthalene intoxication: Naphthalene requires hepatic and microsomal activation prior to the production of toxic effects. Liver microsomes catalyse the initial synthesis of the reactive 1,2-epoxide intermediate which is subsequently oxidised to naphthalene dihydrodiol and alpha-naphthol. The 2-naphthoquinones are thought to produce haemolysis, the 1,2-naphthoquinones are thought to be responsible for producing cataracts in rabbits, and the glutathione-adducts of naphthalene-1,2-oxide are probably responsible for pulmonary toxicity. Suggested treatment regime:
· Induce emesis and/or perform gastric lavage with large amounts of warm water where oral poisoning is suspected.
· Instill a saline cathartic such as magnesium or sodium sulfate in water (15 to 30g).
· Demulcents such as milk, egg white, gelatin, or other protein solutions may be useful after the stomach is emptied but oils should be avoided because they promote absorption.
· If eyes/skin contaminated, flush with warm water followed by the application of a bland ointment.
· Severe anaemia, due to haemolysis, may require small repeated blood transfusions, preferably with red cells from a non-sensitive individual.
· Where intravascular haemolysis, with haemoglobinuria occurs, protect the kidneys by promoting a brisk flow of dilute urine with, for example, an osmotic diuretic such as mannitol. It may be useful to alkalinise the urine with small amounts of sodium bicarbonate but many researchers doubt whether this prevents blockage of the renal tubules.
· Use supportive measures in the case of acute renal failure. GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, 5th Ed.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

· Foam.

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· Dry chemical powder.
· BCF (where regulations permit).
· Carbon dioxide.
· Water spray or fog - Large fires only.

FIRE FIGHTING
Alert Fire Brigade and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves.
· Prevent, by any means available, spillage from entering drains or water courses.
Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD
Flammable solid.
NOTE: Burns with intense heat. Produces melting, flowing, burning liquid and dense acrid black smoke.
Avoid creating dust - may present dust explosion hazard. Dry dust can be electrostatically charged by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by grounding.
CARE: Contamination of heated / molten liquid with water may cause violent steam explosion, with scattering of hot contents.
Decomposes on heating and produces toxic fumes of carbon monoxide (CO).

FIRE INCOMPATIBILITY
Avoid contamination with strong oxidising agents as ignition may result.

Personal Protective Equipment
Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
Clean up all spills immediately.
Wear protective neoprene gloves and chemical goggles.
Avoid breathing vapours and contact with skin and eyes.
Use dry clean up procedures and avoid generating dust.
Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS
Clear area of personnel and move upwind.
· Wear breathing apparatus plus protective gloves.
· Prevent, by any means available, spillage from entering drains or
· Consider evacuation (or protect in place).
Shut off all possible sources of ignition and increase ventilation.
No smoking or naked lights within area.
Stop leak if safe to do so.
Avoid generating dust.
Absorb or cover spill with sand, earth, inert material or vermiculite.
Collect, using a spark-free shovel, and seal in labelled drums for disposal.
If contamination of drains or waterways occurs, advise emergency services.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

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EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)
The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
naphthalene 250 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
naphthalene 35 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:
naphthalene 15 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:
naphthalene 10 ppm

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	X	X	X	+

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
Avoid breathing vapours and contact with skin and eyes.
Avoid generating and breathing dust.
Avoid contact with incompatible materials.
Avoid prolonged and repeated skin contact.
Avoid all ignition sources.
Wear protective clothing when risk of exposure occurs.
When handling, DO NOT eat, drink or smoke.
Use in a well-ventilated area.
Use spark-free tools when handling.
Keep containers securely sealed when not in use.
Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
Wash hands with soap and water after handling.
Launder contaminated clothing before re-use.

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SUITABLE CONTAINER

Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Avoid storage with oxidisers.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• naphthalene: CAS:91- 20- 3

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
naphthalene		250

ODOUR SAFETY FACTOR (OSF)

OSF=1.2E2 (NAPHTHALENE)
Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.
Odour Safety Factor (OSF) is determined to fall into either Class A or B.
The Odour Safety Factor (OSF) is defined as:
OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm
Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

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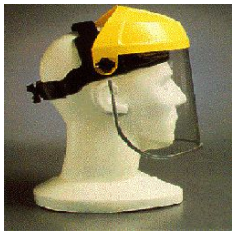
MATERIAL DATA

Odour Threshold Value: 0.038 ppm
The TLV-TWA is thought to be low enough to prevent ocular toxicity but the margin of safety associated with the TLV for hypersusceptible individuals (with glucose-6-phosphate dehydrogenase defective erythrocytes) to naphthalene-induced blood dyscracias is unknown. Individual sensitivity to inhaled naphthalene-induced haemotoxicity varies greatly with even small doses producing acute haemolysis in some.

PERSONAL PROTECTION

EYE

· Safety glasses with side shields; or as required,
· Chemical goggles.
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

OTHER

· Overalls.
· Eyewash unit.
Ensure ready access to a burns first aid kit.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area or Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
· 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.
· If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
(a): particle dust respirators, if necessary, combined with an absorption cartridge;

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(b): filter respirators with absorption cartridge or canister of the right type;
(c): fresh-air hoods or masks
· Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
· Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:	Air Speed:
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless, volatile, crystalline flakes or powder with mothball odour.
Insoluble in water. Soluble in alcohol, ether, benzene, carbon tetrachloride

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.

Molecular Weight: 128.2 Pure	Boiling Range (°C): 218
Melting Range (°C): 80.2	Specific Gravity (water=1): 1.145 @ 20 C
Solubility in water (g/L): Insoluble	pH (as supplied): Not applicable
pH (1% solution): Not applicable.	Vapour Pressure (kPa): 0.0131 @ 25 C

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Volatile Component (%vol): 100
Relative Vapour Density (air=1): 4.4
Lower Explosive Limit (%): 1
Autoignition Temp (°C): 526
State: Divided solid

Evaporation Rate: Extremely Slow
Flash Point (°C): 79
Upper Explosive Limit (%): 5.9
Decomposition Temp (°C): Not available.
Viscosity: Not available

log Kow (Prager 1995): 3.01- 3.59
log Kow (Sangster 1997): 3.35
log Kow: 3.01-3.59

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Ingestion of naphthalene and its congeners may produce abdominal cramps with nausea, vomiting, diarrhoea, headache, profuse perspiration, listlessness, confusion, and in severe poisonings, coma with or without convulsions. Irritation of the urinary bladder may also occur (presumably due to the excretory products of naphthalene metabolism) and produce urgency, dysuria, and the passage of brown or black urine with or without albumin or casts. These effects may disappear within a few days and have not been associated with haemolysis which is a prominent finding in naphthalene poisoning. Severe naphthalene poisoning in humans produces haemoglobinuria, methaemoglobinaemia, the production of Heinz bodies and death. Methaemoglobinemia produces a form of oxygen starvation (anoxia). Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.
At about 15% concentration of blood methaemoglobin there is observable cyanosis of the lips, nose and earlobes. Symptoms may be absent although euphoria, flushed face and headache are commonly experienced. At 25-40%, cyanosis is marked but little disability occurs other than that produced on physical exertion. At 40-60%, symptoms include weakness, dizziness, lightheadedness, increasingly severe headache, ataxia, rapid shallow respiration, drowsiness, nausea, vomiting, confusion, lethargy and stupor. Above 60% symptoms include dyspnea, respiratory depression, tachycardia or bradycardia, and convulsions. Levels exceeding 70% may be fatal. In those who survive haemotoxic effects, life-threatening acute renal failure, secondary to renal blockade, occurs. The acute lethal dose of naphthalene is estimated to be between 5 and 15 grams, although certain susceptible individuals have died after ingestion of a total dose of 2 grams.
Hypersusceptibility, based on congenital deficiency of glucose-6-phosphate dehydrogenase activity, has been identified and is more common amongst Asians, Arabs, Caucasians of Latin ancestry and American and African blacks; males in particular are sensitive.

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EYE
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.
The vapour is discomforting.
The material may be irritating to the eye, with prolonged contact causing inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
if exposure is prolonged.
Sensitisation reactions may appear suddenly after repeated
symptom free exposures.
The material may accentuate any pre-existing skin condition.
Open cuts, abraded or irritated skin should not be exposed to this material.
The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

INHALED
Inhalation may produce health damage*.
Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.
Inhalation hazard is increased at higher temperatures.
Acute effects from inhalation of high vapour concentrations may be chest and nasal irritation with coughing, sneezing, headache and even nausea.
Inhalation of naphthalene vapour has been associated with headache, loss of appetite and nausea. Other conditions associated with exposure to the vapour include optic neuritis, corneal injury and kidney damage. Animals exposed to aerosols of a refined commercial solvent mixture consisting primarily of mono-methylated naphthalenes, exhibited dyspnoea. When animals were exposed to this mixture for 27 daily one-hour exposures over a 35-day period, they showed dyspnoea, listlessness, prostration and marked salivation. Weight loss was evident in mice but not in other species. Pathological changes occurred in the lungs, liver and skin. Pulmonary changes consisted mainly of oedema, bronchopneumonia, emphysema, and thickening of the parabronchiolar alveolar septa. Haematology did not identify significant changes.

CHRONIC HEALTH EFFECTS
On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.
There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.
Principal routes of exposure are usually by.
inhalation of generated dust, inhalation of vapour and skin contact/absorption.
Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.
In a two-year inhalation study, groups of mice were exposed at 0, 10 or 30 ppm naphthalene, 6 hours/day, 5 days/week for 103 weeks. Female mice showed an increase of

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Section 11 - TOXICOLOGICAL INFORMATION

pulmonary alveolar/bronchiolar adenomas at 30 ppm. There was no increase in the incidence of tumours in male mice. Naphthalene inhalation was associated with an increase in the incidence and severity of chronic inflammation, metaplasia of the olfactory epithelium, and hyperplasia of the respiratory epithelium in the nose, and chronic inflammation of the lungs of both sexes.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Oral (child) LDLo: 100 mg/kg	Skin (rabbit):495 mg (open) - Mild
Unrep. (human) LDLo: 29 mg/kg	Eye (rabbit): 100 mg - Mild
Unrep. (man) LDLo: 74 mg/kg	
Oral (rat) LD50: 490 mg/kg	
Dermal (rat) LD50: >2500 mg/kg	

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant:	Yes
Fish LC50 (96hr.) (mg/l):	1.37- 3.8
log Kow (Prager 1995):	3.01- 3.59
log Kow (Sangster 1997):	3.35
log Pow (Verschueren 1983):	3.01/3.45
BOD20:	0%
COD:	80%
ThOD:	2.99
Half- life Soil - High (hours):	1152
Half- life Soil - Low (hours):	398
Half- life Air - High (hours):	29.6
Half- life Air - Low (hours):	2.96
Half- life Surface water - High (hours):	480
Half- life Surface water - Low (hours):	12
Half- life Ground water - High (hours):	6192
Half- life Ground water - Low (hours):	24
Aqueous biodegradation - Aerobic - High (hours):	480
Aqueous biodegradation - Aerobic - Low (hours):	12
Aqueous biodegradation - Anaerobic - High (hours):	6192
Aqueous biodegradation - Anaerobic - Low (hours):	600
Aqueous biodegradation - Removal secondary treatment - High (hours):	98.60%
Aqueous biodegradation - Removal secondary treatment - Low (hours):	77%
Aqueous photolysis half- life - High (hours):	13200
Aqueous photolysis half- life - Low (hours):	1704
Photolysis maximum light absorption - High (nano- m):	220.5
Photolysis maximum light absorption - Low (nano- m):	310.5
Aqueous photolysis half- life - High (hours):	13200
Aqueous photolysis half- life - Low (hours):	1704
Photooxidation half- life air - High (hours):	29.6
Photooxidation half- life air - Low (hours):	2.96

log Kow: 3.01-3.59
Koc: 400-1000
log Kom: 2.93-3.29
Half-life (hr) air: 6.3-24
Half-life (hr) H2O surface water: 0.8-13200
Half-life (hr) H2O ground: 5256
Half-life (hr) soil: 8-150
Half-life (hr) sediment: 4.9->2112
Henry's Pa m^3 /mol: 29.2-56

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Henry's atm m^3 /mol: (4.83-5.53)e-4
BOD 5 if unstated: nil
COD: 22%
ThOD: 2.99
BCF: 20-6000
Log BCF: 1.48-4.11
Toxicity Fish: LC50(96)2.1-20.8mg/L

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: FLAMMABLE SOLID
HAZCHEM: 2Z

UNDG:

Dangerous Goods Class:	4.1	Subrisk:	None
UN Number:	1334	Packing Group:	III

Shipping Name:NAPHTHALENE, CRUDE
NAPHTHALENE, REFINED
NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED

Air Transport IATA:

ICAO/IATA Class:	4.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1334	Packing Group:	III
ERG Code:	3L		

Shipping name:NAPHTHALENE, CRUDE
NAPHTHALENE, REFINED
NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED

Maritime Transport IMDG:

IMDG Class:	4.1	IMDG Subrisk:	None
UN Number:	1334	Packing Group:	III
EMS Number:	F- A, S- G		

Shipping name:NAPHTHALENE, CRUDE
NAPHTHALENE, REFINED
NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED

continued...

Section 15 - REGULATORY INFORMATION

REGULATIONS

naphthalene (CAS: 91-20-3) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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