CATO Research Chemicals Inc.
3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Web: www.cato-chem.com
Tel: +86-20-81960175 Fax: +86-20-81717260 E-mail: info@cato-chem.com

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Naphthalene

1.2 Other means of identification

Product number CPAH111516
Other names -

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Carcinogenicity, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning
Hazard statement(s)
H302 Harmful if swallowed
H351 Suspected of causing cancer
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)
Prevention
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P273 Avoid release to the environment.

Response
P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P318 IF exposed or concerned, get medical advice.
P391 Collect spillage.

Storage P405 Store locked up.
Disposal P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Naphthalene	Naphthalene	91-20-3	202-049-5	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Seek medical attention if you feel unwell.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 133 [Flammable Solids]: Fire may produce irritating and/or toxic gases. Contact may cause burns to skin and eyes. Contact with molten substance may cause severe burns to skin and eyes. Runoff from fire control may cause pollution. (ERG, 2016)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Emergency and supportive measures: Maintain an open airway and assist ventilation if necessary. Treat coma and seizures if they occur. Treat hemolysis and resulting hemoglobinuria if they occur, by intravenous hydration and urinary alkalinization. Naphthalene and paradichlorobenzene

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Solid streams of water may be ineffective. Use "alcohol" foam, dry chemical or carbon dioxide. Naphthalene, crude or refined

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 133 [Flammable Solids]: Flammable/combustible material. May be ignited by friction, heat, sparks or flames. Some may burn rapidly with flare-burning effect. Powders, dusts, shavings, borings, turnings or cuttings may explode or burn with explosive violence. Substance may be transported in a molten form at a temperature that may be above its flash point. May re-ignite after fire is extinguished. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Environmental considerations: Water spill: Use natural barriers or oil spill booms to limit spill travel. Use natural deep water pockets, excavated lagoons, or sand bag barriers to trap material at bottom. Remove trapped material with suction hoses. Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates. Naphthalene, molten

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and food and feedstuffs. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.Without inert-gas blanketing and at the temperature normally used for the storage of molten naphthalene, i.e., 90 deg C, the vapors above the liquid are within the flammability limits. Thus, storage tanks containing molten naphthalene have a combustible mixture in the vapor space and care must be taken to eliminate all sources of ignition around such systems. Naphthalene dust can form explosive mixtures with air which necessitates the design and operation of solid handling systems.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 10 ppm as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans).EU-OEL: 50 mg/m3, 10 ppm as TWA.MAK: skin absorption (H); carcinogen category: 2; germ cell mutagen group: 3B

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Flakes, granules.
Colour	White as solid.
Odour	Aromatic odor
Melting point/freezing point	80.3 °C. Atm. press.:Ca. 101 kPa. Remarks:Pure naphthalene.;78.9 °C. Atm. press.:Ca. 101 kPa.
Boiling point or initial boiling point and boiling range	218.1 °C. Atm. press.:101.3 kPa. Remarks:Naphthalene (pure).;218.2 °C. Atm. press.:101.3 kPa. Remarks:Naphthalene (techn.).
Flammability	Combustible Solid, but will take some effort to ignite.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 0.9% by volume; Upper flammable limit: 5.9% by volume
Flash point	78.5 °C. Atm. press.:99 kPa.
Auto-ignition temperature	>= 526 - <= 587 °C. Atm. press.:1 013 hPa. Remarks:Range of literature data.;540 °C. Atm. press.:1 013 hPa. Remarks:Nabert and Schon 1963: DIN 51794.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	kinematic viscosity (in mm²/s) = 1.05. Temperature:81.5°C. Remarks:Naphthalene, pure.;kinematic viscosity (in mm²/s) = 1.03. Temperature:85.0°C. Remarks:Naphthalene, pure.;kinematic viscosity (in mm²/s) = 1. Temperature:80.0°C. Remarks:Naphthalene, technical quality.
Solubility	Insoluble in water
Partition coefficient n-octanol/water	log Pow = 3.4. Temperature:25 °C.
Vapour pressure	7.2 Pa. Temperature:20 °C.;10.5 Pa. Temperature:25 °C.
Density and/or relative density	1.085. Temperature:24.7 °C.;1.085. Temperature:20 °C.;1.069 g/cm³. Temperature:24.7 °C.
Relative vapour density	4.4 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

On combustion, forms irritating and toxic gases. Reacts with strong oxidants. This generates fire and explosion hazard.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Flammable in the presence of a source of ignition, through friction or retained heat.Dust explosion possible if in powder or granular form, mixed with air.Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic hydrocarbons, such as NAPHTHALENE, and strong oxidizing agents. They can react exothermically with bases and with diazo compounds. Substitution at the benzene nucleus occurs by halogenation (acid catalyst), nitration, sulfonation, and the Friedel-Crafts reaction. Naphthalene, camphor, glycerol, or turpentine will react violently with chromic anhydride [Haz. Chem. Data 1967. p 68]. Friedel-Crafts acylation of naphthalene using benzoyl chloride, catalyzed by $AlCl_3$, must be conducted above the melting point of the mixture, or the reaction may be violent [Clar, E. et al., Tetrahedron, 1974, 30, 3296].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Naphthalene ...will react violently with chromic anhydride.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - mouse (female) - 710 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - > 77.7 ppm.
- Dermal: LD50 - rat (male/female) - > 16 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

WEIGHT-OF-EVIDENCE CHARACTERIZATION: Using criteria of the 1986 Guidelines for Carcinogen Risk Assessment, naphthalene is classified in group C, a possible human carcinogen. This is based on the inadequate data of carcinogenicity in humans exposed to naphthalene via the oral and inhalation routes, and the limited evidence of carcinogenicity in animals via the inhalation route. Using the 1996 Proposed Guidelines for Carcinogen Risk Assessment, the human carcinogenic potential of naphthalene via the oral or inhalation routes "cannot be determined" at this time based on human and animal data; however, there is suggestive evidence (observations of benign respiratory tumors and one carcinoma in female mice only exposed to naphthalene by inhalation). Additional support includes increase in respiratory tumors associated with exposure to 1-methylnaphthalene. At the present time the mechanism whereby naphthalene produces benign respiratory tract tumors are not fully understood, but are hypothesized to involve oxygenated reactive metabolites produced via the cytochrome P-450 monooxygenase system. However, based on the many negative results obtained in genotoxicity tests, a genotoxic mechanism appears unlikely. HUMAN CARCINOGENICITY DATA: Available data are inadequate to establish a causal association between exposure to naphthalene and cancer in humans. Adequately scaled epidemiological studies designed to examine a possible association between naphthalene exposure and cancer were not located. Overall, no data are available to evaluate the carcinogenic potential in exposed human populations.

Reproductive toxicity

Hemolytic anemia has been reported in infants born to mothers who "sniffed" and ingested naphthalene (as mothballs) during pregnancy. The mothers themselves were anemic, but to a lesser extent than the infants. Signs of maternal toxicity (e.g., decreased body weight and lethargy) but no fetal effects were reported in rats and rabbits exposed to naphthalene via gavage. Maternal toxicity (increased mortality and reduced weight gain) and fetotoxicity (reduced number of live pups per litter) were observed in mice exposed via gavage.

STOT-single exposure

The substance may cause effects on the blood. This may result in lesions of blood cells (haemolysis). See Notes. The effects may be delayed. Ingestion could cause death. Medical observation is indicated.

STOT-repeated exposure

The substance may have effects on the blood. This may result in chronic haemolytic anaemia. The substance may have effects on the eyes. This may result in development of cataract. This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - 1.6 mg/L - 96 h. Remarks:Naphthalene.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 2.16 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 2.96 mg/L - 4 h.
- Toxicity to microorganisms: IC50 for Nitrosomonas - Nitrosomonas and aerobic heterotrophs - 29 mg/L - 24 h.

12.2 Persistence and degradability

AEROBIC: Although there are some conflicting data, data suggest that naphthalene degrades after a relatively short period of acclimation and that degradation can be rapid in oil polluted water, slow in unpolluted water and that the rate of degradation increases with the concentration of naphthalene(1). In laboratory tests with sewage or sludge inoculums, 100% degradation was obtained in 7 days(2-3) while others got 0% BOD in 5 days(4-5). The lag period for naphthalene degradation decreased as groundwater was more polluted with fuel oil; the lag period was 1.2 and 1.9 days in heavily polluted and slightly polluted water, respectively versus 12 days for unpolluted water(6). Approximately 70% of naphthalene was lost in a pilot-scale municipal wastewater treatment plant due to biodegradation(7). In water, bacteria can utilize naphthalene only when it is in the dissolved state(8). Naphthalene, present at 100 mg/L, reached 2% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(9).

12.3 Bioaccumulative potential

The BCF of naphthalene at a water concentration of 0.15 mg/L ranged from 36.5 to 168 in carp, over an 8 week exposure period(1). BCF values in sheepshead minnows (Cyprinodon variegatus) exposed for 36 days to 1.34 and 12.5 ug/L of naphthalene were 692 and 714, respectively(2). According to a classification scheme(3), these BCF values suggest for bioconcentration in aquatic organisms is low to high(SRC). BCF values in amphipods (Diporeia spp) exposed for 28 days to 453.2 to 2201.1 ug/L of naphthalene were 490 to 736(4).

12.4 Mobility in soil

The mean Koc value of naphthalene in 17 soils throughout the US was 871(1). The Koc of naphthalene in 5 different soils from Japan ranged from 440-830(2). In a long term field experiment in Uppsala, Sweden, soils were treated with 7 types of amendments and 1 untreated plot, Koc values were 112-680 for naphthalene(3). In a contaminated soil collected from a railway station in Spain, naphthalene had a log Koc of 3.97(4). The mean Koc value of naphthalene in sediment samples from 2 ponds and 1 river from north Georgia, US was 1,300(5). The log Koc value in sediment was 2.84(6). In 76 sediment samples from 7 sites in New York and 1 in North Carolina, naphthalene had log Koc values of 2.45-5.59(7). According to a classification scheme(8), these Koc values suggest that naphthalene is expected to have high to no mobility in soil(SRC).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1334 (For reference only, please check.)	IMDG: UN1334 (For reference only, please check.)	IATA: UN1334 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED (For reference only, please check.)	IMDG: NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED (For reference only, please check.)	IATA: NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 4.1 (For reference only, please check.)	IMDG: 4.1 (For reference only, please check.)	IATA: 4.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.)	IMDG: III (For reference only, please check.)	IATA: III (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes	IMDG: Yes	IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Naphthalene	Naphthalene	91-20-3	202-049-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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