

NAPHTHALENE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

NAPHTHALENE
Naphthalin; Tar Camphor; White Tar
CAS: 91-20-3

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Chemical intermediate for phthalic anhydride, dyes, resins and surfactants; moth repellent/fumigant applications. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
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1.4 Emergency phone number:

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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Flam. Sol. 2	Flammable solid, Category 2, H228
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Eye Irrit. 2	Eye irritation, Category 2, H319
Carc. 2	Carcinogenicity, Category 2, H351
Aquatic Acute 1	Hazardous to the aquatic environment, acute hazard, Category 1, H400
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic hazard, Category 1, H410

2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

Flam. Sol. 2: H228 – Flammable solid.
Acute Tox. 4: H302 – Harmful if swallowed.
Eye Irrit. 2: H319 – Causes serious eye irritation.
Carc. 2: H351 – Suspected of causing cancer.
Aquatic Acute 1: H400 – Very toxic to aquatic life.
Aquatic Chronic 1: H410 – Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P201: Obtain special instructions before use.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P391: Collect spillage.
P501: Dispose of the contents/containers in accordance with regulations on hazardous waste or packaging and packaging waste, respectively.

2.3 Other hazards which do not result in classification:

Sublimes readily at room temperature, generating characteristic penetrating vapour. Dust/vapour may form flammable/explosive mixtures with air under certain conditions. Not a PBT/vPvB substance per available data, though highly toxic to aquatic organisms.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Naphthalene
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 91-20-3	Naphthalene — Flam. Sol. 2: H228; Acute Tox. 4: H302; Eye Irrit. 2: H319; Carc. 2: H351; Aquatic Acute 1: H400; Aquatic Chronic 1: H410 – Warning	≥ 99% (typical commercial/industrial grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance if symptoms occur, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure to fresh air and keep at rest. Seek medical attention if headache, nausea or respiratory discomfort persists.

By skin contact:

Remove contaminated clothing and wash skin thoroughly with soap and water. Seek medical advice if irritation persists.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, lifting eyelids occasionally. Remove contact lenses if present and easy to do. Seek medical advice.

By ingestion/aspiration:

Do not induce vomiting. Rinse out the mouth. Seek medical attention immediately, especially if G6PD deficiency is known (risk of haemolytic anaemia). Keep the person at rest.

4.2 Most important symptoms/effects, acute and delayed:

Headache, nausea, vomiting and, in cases of significant exposure (notably in G6PD-deficient individuals or infants), haemolytic anaemia with jaundice. See sections 2 and 11.

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

Monitor for signs of haemolysis (jaundice, dark urine) following significant exposure; treat symptomatically. No specific antidote.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Dry chemical powder, carbon dioxide, foam, water spray/fog (for cooling)

Unsuitable: High-pressure water jet (may scatter burning material)

5.2 Specific hazards arising from the chemical:

Flammable solid. Sublimes to form vapour which can travel to an ignition source and flash back. Dust or vapour/air mixtures may be explosive. Combustion produces dense, acrid smoke and may release carbon monoxide, carbon dioxide and polycyclic aromatic compounds.

5.3 Special protective actions for fire-fighters:

Evacuate non-essential personnel. Wear self-contained breathing apparatus and full protective clothing. Approach from upwind.

Additional provisions:

Cool closed containers exposed to fire with water spray. Contain fire-fighting water run-off to prevent environmental release, as the product is very toxic to aquatic life.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating dust or vapour. Eliminate ignition sources. Use PPE described in section 8. Ensure adequate ventilation.

For emergency responders:

Wear appropriate protective equipment as per section 8. Keep unprotected persons away.

6.2 Environmental precautions:

Avoid at all cost any release into drains, watercourses or soil – very toxic to aquatic life. Contain spillage. Notify the relevant authority in case of significant environmental release.

6.3 Methods and materials for containment and cleaning up:

Sweep up (avoid dust/vapour generation) and place in a suitable, labelled, sealed container for disposal or recovery. Do not flush to drains.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating dust and vapour. Use only in well-ventilated areas. Keep away from heat, sparks and open flame.

B. Technical recommendations for the prevention of fires and explosions:

Use explosion-proof electrical/ventilating/lighting equipment where dust or vapour concentrations may be significant. Use anti-static earthing for bulk handling.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling. Wash hands and exposed skin thoroughly after handling.

D. Technical recommendations to prevent environmental risks:

Prevent release to drains and watercourses. Follow the protective measures given in section 8.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	Ambient
Maximum Temp.	30°C
Maximum time	12 Months (unopened, in original packaging)

B. General conditions for storage:

Store in a cool, dry, well-ventilated place away from heat, open flame and oxidizing agents, in tightly closed containers. Minimize sublimation losses by storing in sealed containers.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Naphthalene CAS: 91-20-3	Time Weighted average concentration (8 hrs)	10 ppm / 52 mg/m³
	Short-term exposure limit (15 min)	15 ppm / 79 mg/m³

8.2 Appropriate engineering controls:

Use local exhaust ventilation to control dust/vapour below occupational exposure limits, in addition to PPE as needed.

B. Respiratory protection:

Use an organic vapour/particulate combination respirator where exposure limits may be exceeded; use self-contained breathing apparatus in enclosed/high-concentration areas.

C. Specific protection for the hands:

Chemical-resistant gloves (e.g. nitrile, neoprene). Replace at any sign of damage.

D. Eye and face protection:

Chemical safety goggles; use a face shield where splashing/dust generation is significant.

E. Bodily protection:

Impervious protective clothing where dust/vapour contact is likely. Antistatic and flame-resistant workwear recommended given flammable solid classification.

F. Additional emergency measures:

Emergency shower and eyewash stations should be available in the work area.

Environmental exposure controls:

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (flakes/balls/powder)
Appearance	White crystalline solid
Color	White
Odor	Strong, characteristic (mothball-like/tar-like) odour
Odour threshold	~0.03–0.08 ppm (typical)
Volatility	
Boiling point at atmospheric pressure	218°C
Vapour pressure at 20°C / 25°C	~0.08–0.09 mm Hg
Evaporation rate at 20°C	Sublimes readily; moderate for a solid
Product Description	
Density / Relative density at 20°C	~1.14–1.16 g/cm³
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	≥99% (typical commercial grade)
pH	Non-applicable (insoluble in water)
Vapour density at 20°C	~4.4 (air = 1)
Partition coefficient n-octanol/water (log Pow)	~3.3
Solubility in water at 25°C	~30 mg/L (practically insoluble); soluble in benzene, toluene, alcohol, ether
Decomposition temperature	Typical value – refer to current specification sheet
Melting point/freezing point	80–82°C
Flammability	
Flash Point	79–88°C (closed cup, typical)
Flammability (solid, gas)	Flammable solid (GHS Flam. Sol. 2)
Autoignition temperature	~526°C
Lower / Upper flammability limit	0.9% / 5.9% (v/v in air, vapour)
Particle Characteristics	
Median equivalent diameter	Varies by grade (flake/ball/powder) – refer to current specification sheet

* Values are typical for the commercial grade; refer to current specification sheet for batch-specific data.

9.2 Other information:

Explosive properties	Dust/vapour-air mixtures may be explosive within the flammability limits
Oxidising properties	Not relevant – not an oxidiser
Corrosive to metals	Not relevant
Heat of combustion	~40 MJ/kg (typical)
Surface tension at 20°C	Not relevant (solid)
Refraction index	Not relevant

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Stable under normal conditions of use. Reacts with strong oxidizing agents; risk of fire/explosion. Incompatible with strong acids.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use. Sublimes slowly at ambient temperature.

10.3 Possibility of hazardous reactions:

Violent reaction possible with strong oxidizers (e.g. chromic acid, nitric acid, permanganates). Dust/vapour-air mixtures may ignite explosively.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid generating dust clouds	Sublimes – minimize prolonged exposure to air	Keep away from heat/ignition sources	No special measures	No special measures

10.5 Incompatible materials:

Strong Oxidizers	Strong Acids	Ignition Sources
Avoid contact – fire/explosion risk	Avoid contact	Keep away

10.6 Hazardous decomposition products:

Thermal decomposition/combustion may release carbon monoxide, carbon dioxide and polycyclic aromatic hydrocarbons/smoke.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Per well-established published data for this CAS number, naphthalene presents the following toxicological profile:

A. Ingestion (acute effect):

Harmful if swallowed. May cause nausea, vomiting, abdominal pain, headache and, at higher doses, haemolytic anaemia (particularly in G6PD-deficient individuals and infants).

B. Inhalation (acute effect):

Vapour/dust may cause headache, nausea, irritation of the respiratory tract and, with significant exposure, haemolytic effects.

C. Contact with skin and eyes (acute effect):

Causes serious eye irritation. Prolonged/repeated skin contact may cause irritation and dermatitis; some reports of cataract formation with chronic high-level exposure in animal studies.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Suspected of causing cancer (Carc. 2, H351) based on animal inhalation studies showing respiratory tumours. IARC: Group 2B (possibly carcinogenic to humans). Not classified for germ cell mutagenicity or reproductive toxicity based on available data.

E. Sensitizing effects:

Not classified as a skin or respiratory sensitizer based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

May cause headache and respiratory irritation at elevated concentrations; not formally classified for STOT SE.

G. Specific target organ toxicity (STOT) – repeated exposure:

Repeated exposure associated with haemolytic anaemia and, in animal studies, cataracts and nasal/respiratory lesions; not formally classified for STOT RE under all supplier SDS, though some list it as a precaution.

H. Aspiration hazard:

Non-applicable (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Naphthalene CAS: 91-20-3	LD50 oral: 490–590 mg/kg	Rat
	LD50 dermal: >2500 mg/kg	Rabbit
	LC50 inhalation: >340 mg/m³ (1h)	Rat

SECTION 12: ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: 1.6–2.0 mg/L (96h)	Non-applicable	Fish
EC50: 2.16 mg/L (48h)	Non-applicable	Crustacean (Daphnia magna)

Substance-specific aquatic toxicity:

Identification	Concentration	Species	Genus
Naphthalene CAS: 91-20-3	LC50: 1.6 mg/L (96h)	Pimephales promelas	Fish
	EC50: 2.16 mg/L (48h)	Daphnia magna	Crustacean

12.2 Persistence and degradability:

Moderately biodegradable under aerobic conditions; may persist longer in anaerobic or low-oxygen environments.

12.3 Bioaccumulative potential:

Moderate bioaccumulation potential indicated by log Pow (~3.3); BCF values typically in the low-to-moderate range.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Moderate (~1300–1600 typical)	Moderate	Moderate mobility possible	Moderate mobility possible

12.5 Results of PBT and vPvB assessment:

Not classified as PBT/vPvB under available regulatory frameworks, though acutely and chronically toxic to aquatic organisms.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of in accordance with local, state and national hazardous waste regulations. Incineration at a licensed hazardous waste facility is a suitable disposal route. Do not discharge to drains or watercourses. For packaging: avoid treatments as far as possible – use dedicated containers.
Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN1334
14.2 UN proper shipping name	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
14.5 Environmental hazard	Yes (marine pollutant)
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN1334
14.2 UN proper shipping name	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
14.5 Marine pollutant	Yes
14.6 Special precautions for user	EmS Codes: F-A, S-G Limited quantities: 5 kg Segregation group: Not relevant
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN1334
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14.2 UN proper shipping name	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED
14.3 Transport hazard class(es)	4.1
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

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

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

- Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
- The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
- The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
- Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

- H228: Flammable solid.
- H302: Harmful if swallowed.
- H319: Causes serious eye irritation.
- H351: Suspected of causing cancer.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Published GHS classification data, IARC monographs and standard chemical reference sources for CAS 91-20-3.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer | G6PD: Glucose-6-phosphate dehydrogenase

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET