

CAMPHENE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

CAMPHENE
Synonyms: 2,2-Dimethyl-3-methylenebicyclo[2.2.1]heptane; 3,3-Dimethyl-2-methylenenorbornane
CAS: 79-92-5

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Intermediate for fragrance and camphor synthesis, insecticide/insect repellent intermediate, plasticizer and polish component, flavour and fragrance industry raw material. 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
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

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. 1	Flammable solids, Category 1, H228
Skin Sens. 1	Skin sensitisation, Category 1, H317
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic hazard, Category 2, H411

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

Flam. Sol. 1: H228 – Flammable solid.
Skin Sens. 1: H317 – May cause an allergic skin reaction.
Aquatic Chronic 2: H411 – 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.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting equipment.
P261: Avoid breathing dust/fume.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/eye protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
P333+P313: If skin irritation or rash occurs, get medical advice/attention.
P370+P378: In case of fire: Use dry sand, dry chemical powder or alcohol-resistant foam to extinguish.
P391: Collect spillage.
P501: Dispose of contents/container in accordance with local regulations on hazardous waste.

2.3 Other hazards which do not result in classification:

Fine powder/flaked material may generate dust that is combustible in the presence of an ignition source. Sublimes readily at room temperature, producing flammable vapour.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Bicyclic monoterpene hydrocarbon (C10H16)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 79-92-5	Camphene — Flam. Sol. 1: H228; Skin Sens. 1: H317; Aquatic Chronic 2: H411 – Danger	≥95%

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

3.2 Mixtures:

Non-applicable – single substance product.

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 advice if discomfort continues.

By skin contact:

Remove contaminated clothing. Wash skin thoroughly with soap and water. If an allergic skin reaction develops, seek medical attention.

By eye contact:

Rinse immediately with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical advice.

By ingestion/aspiration:
Do not induce vomiting. Rinse mouth with water. Seek immediate medical advice.

4.2 Most important symptoms/effects, acute and delayed:
Skin sensitisation may develop on repeated contact. See sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:
Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:
Suitable: Dry sand, dry chemical powder (ABC), carbon dioxide, alcohol-resistant foam.
Unsuitable: High-pressure water jet (may spread burning material/dust).

5.2 Specific hazards arising from the chemical:
Flammable solid; readily sublimates at room temperature releasing flammable vapour. Dust clouds may form explosive mixtures with air in confined spaces. Combustion produces carbon monoxide and carbon dioxide.

5.3 Special protective actions for fire-fighters:
Evacuate non-essential personnel. Wear self-contained breathing apparatus and full protective clothing. Cool exposed containers/packages with water spray from a safe distance.

Additional provisions:
Contain fire-fighting water run-off; avoid discharge to drains/watercourses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel:
Eliminate all ignition sources. Avoid generating dust. Use PPE as per section 8. Ventilate the area.
For emergency responders:
Wear antistatic protective clothing and respiratory protection against dust/vapour. Avoid sources of ignition.

6.2 Environmental precautions:
Prevent spillage from entering drains, watercourses or soil. Notify the relevant authority in case of significant release to the environment.

6.3 Methods and materials for containment and cleaning up:
Sweep up carefully using non-sparking tools and place in a suitable labelled container for recovery or disposal. Avoid generating dust during clean-up.

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:
Keep away from heat, sparks, open flame and other ignition sources. Avoid generating dust; minimise dust-cloud formation, which can be combustible in the presence of an ignition source.
B. Technical recommendations for the prevention of fires and explosions:
Use explosion-proof electrical/ventilating/lighting equipment. Ground and bond containers and transfer equipment to control static electricity.
C. Technical recommendations on general occupational hygiene:
Do not eat, drink or smoke during handling. Wash hands thoroughly after handling.
D. Technical recommendations to prevent environmental risks:
Avoid 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:

Storage Temp.	Below 30°C, cool and dry
Maximum time	12 Months in original closed container

B. General conditions for storage:
Store in a cool, dry, well-ventilated area away from heat, direct sunlight, and incompatible materials (oxidisers). Keep container tightly closed to limit sublimation losses.

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:
No specific occupational exposure limit has been established for camphene under the Factories Act, 1948, as amended. General terpene-vapour good-practice guidance may be applied:

Identification	Occupational Exposure Limit Type	Value
Camphene CAS: 79-92-5	Time Weighted average concentration (8 hrs)	Typical value — refer to current specification sheet

8.2 Appropriate engineering controls:
Use local exhaust ventilation and dust-control measures where the solid is handled in powdered/flaked form, in addition to PPE.

B. Respiratory protection:
Dust/vapour filter mask where ventilation is insufficient.

C. Specific protection for the hands:
Chemical-resistant gloves (nitrile). Replace at any sign of damage.

D. Eye and face protection:
Safety glasses with side shields; use chemical goggles where dust is generated.

E. Bodily protection:
Antistatic protective clothing recommended; safety footwear with antistatic properties.

F. Additional emergency measures:
Emergency shower and eyewash stations should be available.

Environmental exposure controls:
Avoid environmental spillage of both the product and its container.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:
Appearance

Physical state at 20°C	Solid (crystalline flakes/lumps)
Appearance	White to colourless crystalline solid
Color	White / colourless
Odor	Camphor-like
Odour threshold	Not established
Volatility	
Boiling point at atmospheric pressure	158 – 160°C
Vapour pressure at 20°C	Appreciable; sublimes readily at room temperature
Evaporation rate at 20°C	Typical value — refer to current specification sheet
Product Description	
Density / Relative density (liquid state)	0.84 – 0.87 g/cm³
Solubility in water at 20°C	Practically insoluble; soluble in ethanol, ether, chloroform
Melting point/freezing point	51 – 52°C
Flammability	
Flash Point	32 – 33°C (closed cup, liquid state)
Flammability (solid, gas)	Flammable solid (H228)
Autoignition temperature	Typical value — refer to current specification sheet
Lower / Upper flammability limit	Not established
Particle Characteristics	
Median equivalent diameter	Grade dependent (flake/granule)

9.2 Other information:

Explosive properties	Not relevant; dust-cloud combustibility applies – see section 10
Oxidising properties	Not relevant
Corrosive to metals	Non-corrosive
Heat of combustion	Typical value — refer to current specification sheet

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

May react with strong oxidising agents. Dust clouds can form combustible mixtures with air.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Contact with strong oxidisers may lead to hazardous exothermic reaction.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid generating sparks	Avoid dust-cloud formation near ignition sources	Danger of ignition above flash point	Avoid prolonged direct exposure	No special measures

10.5 Incompatible materials:

Strong Oxidisers	Open Flame / Sparks
Avoid contact – risk of fire	Keep away – flammable solid/vapour

10.6 Hazardous decomposition products:

Oxides of carbon on combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than recommended, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Low acute oral toxicity; may cause gastrointestinal discomfort if swallowed.

B. Inhalation (acute effect):

Vapour/dust may cause mild irritation of the respiratory tract.

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

May cause mild skin irritation; repeated contact may cause allergic skin sensitisation (H317). May cause mild eye irritation.

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

Classification criteria are not met based on available data. IARC: Not classified.

E. Sensitizing effects:

Classified as Skin Sens. 1 (H317) based on established data for this and related terpene hydrocarbons.

F/G. Specific target organ toxicity (STOT):

Classification criteria are not met based on available data.

H. Aspiration hazard:

Classification criteria are not met based on available data.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Camphene CAS: 79-92-5	LD50 oral: >3000 mg/kg	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Toxic to aquatic life with long lasting effects.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: 1 – 10 mg/L (96h), typical value	Typical value — refer to current specification sheet	Fish
EC50: 1 – 10 mg/L (48h), typical value	Typical value — refer to current specification sheet	Crustacean

12.2 Persistence and degradability:
Expected to biodegrade under aerobic conditions; not considered persistent.

12.3 Bioaccumulative potential:
Log Pow indicates some potential for bioaccumulation; not established as bioaccumulative per regulatory criteria.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Moderate to high	Moderate	Low mobility	Low mobility

12.5 Results of PBT and vPvB assessment:
Does not meet PBT/vPvB criteria based on available data.

12.6 Other adverse effects:
Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:
Dispose of via an authorised hazardous/industrial waste contractor in accordance with local regulations. 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	UN1325
14.2 UN proper shipping name	FLAMMABLE SOLID, ORGANIC, N.O.S. (Camphene)
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

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

14.1 UN number	UN1325
14.2 UN proper shipping name	FLAMMABLE SOLID, ORGANIC, N.O.S. (Camphene)
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
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	UN1325
14.2 UN proper shipping name	FLAMMABLE SOLID, ORGANIC, N.O.S. (Camphene)
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

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.
H317: May cause an allergic skin reaction.
H411: 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:
The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and physical-constant references for CAS 79-92-5.

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

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