

SAFETY DATA SHEET

1. PRODUCT

1.1 Product identifiers

Name: Camphor

CAS-No.: 76-22-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 2), H228


Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Specific target organ toxicity - single exposure, Inhalation (Category 2), Lungs, H371

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Warning
Hazard statement(s)	H228 Flammable solid. H302 + H332 Harmful if swallowed or if inhaled H371 May cause damage to organs (Lungs) if inhaled.
Precautionary statement(s)	P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ eye protection/ face protection. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rubefacient.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms: (±)-Camphor
1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one

Formula: $C_{10}H_{16}OC_{10}H_{16}O$

Molecular weight: 152.23 g/mol

CAS-No.: 76-22-2
EC-No.: 200-945-0

Hazardous components

Component	Classification	Concentration
Bornan-2-one		
	Flam. Sol. 2; Acute Tox. 4; STOT SE 2; H228, H302 + H332, H371	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.2 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

Storage class (TRGS 510): Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Bornan-2-one	76-22-2	TWA	2.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) -Table Z-1 Limits for Air Contaminants
		TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Anosmia Not classifiable as a human carcinogen		
		STEL	3.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Anosmia Not classifiable as a human carcinogen		
		TWA	2.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	2 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection	Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Form: powder Colour: white
Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/range: 175 - 177 °C (347 - 351 °F) - lit.
Initial boiling point and boiling range	204 °C (399 °F) - lit.
Flash point	64.4 °C (147.9 °F) - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2.
Upper/lower flammability or explosive limits	Upper explosion limit: 3.5 %(V) Lower explosion limit: 0.6 %(V)
Vapour pressure	5 hPa (4 mmHg) at 70 °C (158 °F) 0.87 hPa (0.65 mmHg) at 25 °C (77 °F) - OECD Test Guideline 104
Vapour density	No data available
Relative density	0.992 g/cm ³ at 25 °C (77 °F) - OECD Test Guideline 109
Water solubility	1.5373 g/l at 25 °C (77 °F) - OECD Test Guideline 105
Partition coefficient: n-octanol/water	log Pow: 2.414 at 25 °C (77 °F) - OECD Test Guideline 107
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents, Strong reducing agents, Chlorinated solvents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 1,310 mg/kg (OECD Test Guideline 420) Inhalation: No data available Dermal: No data available No data available
Skin corrosion/irritation
No data available
Serious eye damage/eye irritation
No data available
Respiratory or skin sensitisation
No data available
Germ cell mutagenicity
In vitro mammalian cell gene mutation test mouse lymphoma cells Result: negative
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
No data available No data available
Specific target organ toxicity -single exposure
Inhalation - May cause damage to organs. - Lungs
Specific target organ toxicity -repeated exposure
No data available
Aspiration hazard
No data available
Additional Information

RTECS: EX1225000

Confusion., Coma., Nausea, Dizziness, Headache

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	- Pimephales promelas (fathead minnow) - 110 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	No data available
Toxicity to algae	No data available
Toxicity to bacteria	No data available

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 77 % - Readily biodegradable (OECD Test Guideline 301F)
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12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2717 Class: 4.1 Packing group: III

Proper shipping name: Camphor

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 2717 Class: 4.1 Packing group: III EMS-No: F-A, S-I

Proper shipping name: CAMPHOR

IATA

UN number: 2717 Class: 4.1 Packing group: III

Proper shipping name: Camphor

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Component	CAS-No.	Revision Date
Bornan-2-one	76-22-2	1993-04-24

Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Bornan-2-one	76-22-2	1993-04-24

New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Bornan-2-one	76-22-2	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Flam. Sol. Flammable solids

H228 Flammable solid.

H302 Harmful if swallowed.

H302 + H332 Harmful if swallowed or if inhaled

H332 Harmful if inhaled.

H371 May cause damage to organs if inhaled.

STOT SE Specific target organ toxicity - single exposure

HMIS Rating

Health hazard: 2

Chronic Health Hazard: *

Flammability: 2

Physical Hazard 2

NFPA Rating

Health hazard: 2

Fire Hazard: 2

