Chemical Safety Data Sheet MSDS / SDS

Camphene SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Camphene

CAS: 79-92-5

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

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SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable solids, Category 2
Eye irritation, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H228 Flammable solid
H319 Causes serious eye irritation
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P273 Avoid release to the environment.

Response

P370+P378 In case of fire: Use ... to extinguish.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P391 Collect spillage.

Storage

none

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Camphene
Common names and synonyms:	Camphene
CAS number:	79-92-5
EC number:	201-234-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse skin with plenty of water or shower.

Following eye contact

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

Following ingestion

Rinse mouth. Give one or two glasses of water to drink.

Most important symptoms/effects, acute and delayed

Inhalation causes irritation of nose and throat. Contact with eyes or skin causes irritation. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Camphor and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

Special protective actions for fire-fighters

Use water spray, powder, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Accidental release measures: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; 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 wetbrushing and place in container for disposal according to local regulations. 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.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 26°C use a closed system, ventilation and explosion-proof electrical equipment. 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.

Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access. Fireproof.Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

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.

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

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Avoid inhalation of dust.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Camphene is a colorless to white crystalline solid with an insipid camphor-like odor. Dust and crystals are irritants to the eyes, nose and throat. Emits flammable vapors when heated. Emits acrid smoke and irritating fumes at high temperature. Used for the manufacture of synthetic camphor.
Colour:	Colorless crystals
Odour:	Camphoraceous, cooling, piney wood with trephy nuances...citrus and green minty and green spicy notes
Melting point/freezing point:	51-52°C
Boiling point or initial boiling point and boiling range:	159-160°C(lit.)
Flammability:	Flammable.

Lower and upper explosion limit/flammability limit:	no data available
Flash point:	29°C
Auto-ignition temperature:	265°C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	1.84 mm2/s at 50°C
Solubility:	In water, 4.6 mg/L at 25 deg C
Partition coefficient n-octanol/water:	log Kow = 4.22
Vapour pressure:	2.5 mm Hg at 25 deg C
Density and/or relative density:	0.85g/mLat 25°C(lit.)
Relative vapour density:	(air = 1): 4.7
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

No rapid reaction with air No rapid reaction with water

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Combustible; yields flammable vapors when heated ...CAMPHENE may react vigorously with strong oxidizing agents. May react exothermically with reducing agents to release hydrogen gas.

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral >5 g/kg

Inhalation: no data available

Dermal: no data available

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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes.

STOT-repeated exposure

no data available

Aspiration hazard

A nuisance-causing concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Brachydanio rerio (Zebrafish); Conditions: flow through; Concentration: 1.4 mg/L for 24 hr, 1.21 mg/L for 48 hr, 0.94 mg/L for 72 hr, 0.72 mg/L for 96 hr /Camphen 87.6%

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea); Conditions: static; Concentration: 46 mg/L for 24 hr (95% confidence interval: 36-60 mg/L) /Formulated product

Toxicity to algae: EC50; Species: Scenedesmus subspicatus (Green algae); Concentration: >1000 mg/L for 72 hr; Effect: growth inhibition test- decreased biomass and growth rate /Camphen 88%

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Camphene, present at 100 mg/L, reached 2% percent of its Theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). Camphene, as a component of kraft pulp mill wastewater, was found to

biodegrade in aerated treatment lagoons after 7 days(2). Aerobic screening studies in which aqueous landfill leachate containing camphene was incubated with soil and sludge inocula and demonstrated approximately 80% degradation after 14 to 70 hours. Overall experimental data suggests that camphene may biodegrade under certain environmental conditions(3,4).

Bioaccumulative potential

BCF values ranging from 432 to 1290 were measured in fish for camphene using carp (Cyprinus carpio) which were exposed over an 8-week period(1). According to a classification scheme(2), this BCF range suggests that bioconcentration in aquatic organisms is high to very high(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of camphene can be estimated to be 1000(SRC). According to a classification scheme(2), this estimated Koc value suggests that camphene is expected to have low mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

ADR/RID: UN1325 (For reference only, please check.)

IMDG: UN1325 (For reference only, please check.)
IATA: UN1325 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: FLAMMABLE SOLID, ORGANIC, N.O.S. (For reference only, please check.)
IMDG: FLAMMABLE SOLID, ORGANIC, N.O.S. (For reference only, please check.)
IATA: FLAMMABLE SOLID, ORGANIC, N.O.S. (For reference only, please check.)

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.)

Packing group, if applicable

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

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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/

Other Information

Explosive limits are unknown in literature, although the substance is combustible and has a flash point < 61°C.Other numbers: CAS 565-00-4: (+-)-Camphene, EC 209-275-3; CAS 5794-03-6: (1R)-Camphene, EC 227-336-2; CAS 5794-04-7: (1S)-Camphene, EC 227-337-8.