

## Chemical Safety Data Sheet MSDS / SDS

## Comphene

Revision Date:2025-12-20 Revision Number:1

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

## Product identifier

Product name : Comphene  
CBnumber : CB6303626  
CAS : 565-00-4  
EINECS Number : 209-275-3  
Synonyms : Comphene,2,2-Dimethyl-3-methylene-bicyclo[2.2.1]heptane

## 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  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Flammable liquids, Category 3  
Eye irritation, Category 2  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## Label elements

## Pictogram(s)

Signal word : Warning

## Hazard statement(s)

H226 Flammable liquid and vapour  
H319 Causes serious eye irritation  
H400 Very toxic to aquatic life  
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.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P273 Avoid release to the environment.

### Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

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

P403+P235 Store in a well-ventilated place. Keep cool.

### 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

no data available

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: Comphene
Synonyms	: Comphene, 2,2-Dimethyl-3-methylene-bicyclo[2.2.1]heptane
CAS	: 565-00-4
EC number	: 209-275-3
MF	: C <sub>10</sub> H <sub>16</sub>
MW	: 136.23

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## SECTION 4: First aid measures

### Description of 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 and effects, both acute and delayed**

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

#### **Indication of any immediate medical attention and special treatment needed**

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

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## **SECTION 5: Firefighting measures**

### **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)

### **Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

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## **SECTION 6: Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **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.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

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.

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## **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

#### **Occupational Exposure limit values**

no data available

#### **Biological limit values**

no data available

### **Exposure 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**

#### **Eye/face protection**

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### **Skin protection**

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### **Respiratory protection**

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### **Thermal hazards**

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

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	48-52°C(lit.)
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	94 °F
Auto-ignition temperature	265°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	1.84 mm <sup>2</sup> /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	0.85 g/mL at 25°C(lit.)
Relative vapour density	(air = 1): 4.7
Particle characteristics	no data available

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## 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.

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## **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**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

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## **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

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# 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.

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# 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

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## **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**

Not Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Not Listed.

#### **PICCS**



Not Listed.

**Vietnam National Chemical Inventory**

Not Listed.

**IECSC**

Listed.

**Korea Existing Chemicals List (KECL)**

Not Listed.

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## 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

ATA: 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?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=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/>

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