

## Chemical Safety Data Sheet MSDS / SDS

## Carbamazepine

Revision Date:2025-02-01 Revision Number:1

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

**Product identifier**

Product name : Carbamazepine  
CBnumber : CB1143564  
CAS : 298-46-4  
EINECS Number : 206-062-7  
Synonyms : Carbamazepine,carbamazepin

**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 : 400-158-6606

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Skin sensitization, Category 1  
Respiratory sensitization, Category 1

**Label elements****Pictogram(s)**

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Signal word Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour  
H302 Harmful if swallowed  
H317 May cause an allergic skin reaction  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H370 Causes damage to organs  
H373 May cause damage to organs through prolonged or repeated exposure

**Precautionary statement(s)**

- P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 Wear respiratory protection.
- P311 Call a POISON CENTER or doctor/physician.
- P314 Get medical advice/attention if you feel unwell.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
- P342+P311 IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician.
- P501 Dispose of contents/container to.....

**Prevention**

- P264 Wash ... thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
- P284 [In case of inadequate ventilation] wear respiratory protection.

**Response**

- P301+P317 IF SWALLOWED: Get medical help.
- P330 Rinse mouth.
- P302+P352 IF ON SKIN: Wash with plenty of water/...
- P333+P317 If skin irritation or rash occurs: Get medical help.
- P321 Specific treatment (see ... on this label).
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.

**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**

no data available

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## SECTION 3: Composition/information on ingredients

**Substance**

Product name	: Carbamazepine
Synonyms	: Carbamazepine, carbamazepin
CAS	: 298-46-4
EC number	: 206-062-7
MF	: C15H12N2O
MW	: 236.27

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### Most important symptoms and effects, both acute and delayed

no data available

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

Emergency and supportive measures. Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. Treat seizures, coma, hyperthermia, arrhythmias, hyponatremia, and dystonias if they occur. Asymptomatic patients should be observed for a minimum of 6 hours after ingestion and for at least 12 hours if an extended-release preparation was ingested. ...

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## SECTION 5: Firefighting measures

### Extinguishing media

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

### Specific Hazards Arising from the Chemical

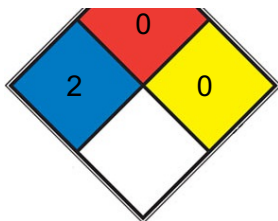
no data available

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### NFPA 704





<input checked="" type="checkbox"/>	<b>HEALTH</b> 2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. <a href="#">diethyl ether</a> , ammonium phosphate, iodine)
<hr/>		
<input checked="" type="checkbox"/>	<b>FIRE</b> 0	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
<hr/>		
<input checked="" type="checkbox"/>	<b>REACT</b> 0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, <a href="#">N2</a> )
<hr/>		
<input type="checkbox"/>	<b>SPEC.</b>	
<input type="checkbox"/>	<b>HAZ.</b>	

## 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

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## 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

Carbamazepine tablets, extended-release tablets, and chewable tablets should be stored in tight, light-resistant containers at temperatures not exceeding 30 deg C. Carbamazepine extended-release capsules should be stored in tight, light-resistant containers at 15-25 deg C. Because dissolution characteristics and associated oral bioavailability of carbamazepine tablets may be affected substantially by moisture, patients should be cautioned to keep containers of the tablets tightly closed and in a dry location, away from areas with excessive moisture (e.g., showers, bathrooms, humidifiers). Carbamazepine tablets may lose one-third or more of their oral bioavailability when exposed to

excessive moisture. Tablets continuously exposed to 97% relative humidity at room temperature for 2 weeks become hardened and dissolve poorly.

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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

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Crystals
Colour	Almost white
Odour	no data available
Melting point/freezing point	180°C(lit.)
Boiling point or initial boiling point and boiling range	189°C/12mmHg(lit.)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	77°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available

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pH	no data available
Kinematic viscosity	no data available
Solubility	45% (w/v) aq 2-hydroxypropyl- $\beta$ -cyclodextrin: soluble 29mg/mL
Partition coefficient n-octanol/water	no data available
Vapour pressure	5.78E-07mmHg at 25°C
Density and/or relative density	1.266g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

no data available

### Chemical stability

To study the photostability of carbamazepine polymorphs, the pure materials on the tablet surface were evaluated without physical damage by means of Fourier-transform infrared reflection-absorption infrared spectrometry (FT-IR-RAS) and colorimetric measurement of the carbamazepine polymorphs I, II, and III, after photodegradation at 2 irradiation intensities under a near-UV fluorescent lamp. The surface of sample pellets of all crystalline forms turned gradually from white to yellow-orange upon exposure to light, and the discoloration rate of form II was faster than that of forms I and III, indicating that form II was the most unstable of the three. The semilogarithmic plots of the photodegradation profiles of the various polymorphs were straight lines, including the induction period, indicating that degradation of the drug on the surface followed first-order kinetics. The induction periods of all forms were not significantly different. However, the degradation rate constant of form II was 5.1 and 1.5 times larger than those of forms I and III, respectively.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Incompatible materials

no data available

### Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- 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: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

AEROBIC: Removal of carbamazepine in German sewage treatment plants was found to be extremely low at 7%(1). Using a batch suspension of activated sludge maintained under aerobic conditions, an initial decrease in 5.0 ug/L carbamazepine was observed in the first 15 minutes, then reached a constant level of 3.1 ug/L; 37% loss was attributed to adsorption to sludge. No metabolites were identified and no further degradation was observed(2).

**Bioaccumulative potential**

An estimated BCF of 15 was calculated in fish for carbamazepine(SRC), using a log Kow of 2.45(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

The Koc of carbamazepine is estimated as 510(SRC), using a log Kow of 2.45(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that carbamazepine is expected to have moderate mobility in soil. In a soil column study using Mahall-Leveen sandy soil from an area northwest of Phoenix, AZ, carbamazepine was detected in the column leachate at a concentration of 0.116 ug/L following addition of the compound at 0.170 ug/L 20 days prior(4).

### **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: UN1170 (For reference only, please check.)

IMDG: UN1170 (For reference only, please check.)

IATA: UN1170 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (For reference only, please check.)

IMDG: ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (For reference only, please check.)

IATA: ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (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: No

IMDG: No

IATA: No

### **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)**

Listed.

#### **PICCS**

Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Listed.

#### **Korea Existing Chemicals List (KECL)**

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

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](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/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.