

## Chemical Safety Data Sheet MSDS / SDS

## Barban SDS

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

|           |            |            |            |            |            |            |            |
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name: Barban  
CAS: 101-27-9

**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  
Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090  
Telephone: +91 9550333722

**SECTION 2: Hazards identification****Classification of the substance or mixture**

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

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
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)

H302 Harmful if swallowed  
H317 May cause an allergic skin reaction  
H410 Very toxic to aquatic life with long lasting effects

### Precautionary statement(s)

### 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/...  
P273 Avoid release to the environment.

### 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.  
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:             | Barban    |
| Common names and synonyms: | Barban    |
| CAS number:                | 101-27-9  |
| EC number:                 | 202-930-4 |
| Concentration:             | 100%      |

**SECTION 4: First aid measures**

**Description of necessary 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/effects, acute and delayed**

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

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

Skin contamination should be treated promptly by washing with soap and water. Contamination of the eyes should be treated immediately by prolonged flushing of the eyes with large amounts of clean water. If dermal or ocular irritation persists, medical attention should be obtained without delay. Other Herbicides

## **SECTION 5: Firefighting measures**

### **Suitable extinguishing media**

If material /is/ on fire or involved in /a/ fire do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide. Carbamate pesticide, liquid, nos, (compounds and preparations) (agricultural insecticides, nec, liquid); Carbamate pesticide, liquid, nos (compounds and preparations) (agricultural insecticides, nec, liquid); Carbamate pesticide, liquid, nos (compounds and preparations) (insecticides, other than agricultural, nec

### **Specific hazards arising from the chemical**

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

### **Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

## **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**

A system for removing pesticides from the wash water produced by pesticide applicators as they clean their equipment has been developed. The first step is the flocculation/coagulation and sedimentation of the pesticide-contaminated wash water. The supernatant from the first step is then passed through activated carbon columns. Pesticides

### **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**

Aluminum, phenolic-lined cans, or glass are recommended for lengthy storage

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

### Skin protection

Wear fire/flame 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

## SECTION 9: Physical and chemical properties and safety characteristics

|   |   |
|---|---|
| Physical state:   | Barban is a crystalline solid. Water solubility is 11 ppm at 20°C. Used as a selective herbicide. |
| Colour:   | Crystalline solid   |
| Odour:  | ODORLESS SOLID  |
| Melting point/freezing point:                             | 75-76 °C  |
| Boiling point or initial boiling point and boiling range: | 340.8 °C at 760 mmHg  |
| Flammability:   | no data available   |
| Lower and upper explosion limit/flammability limit:       | no data available   |

|  |   |
|--|---|
| Flash point:                           | 159.9°C   |
| Auto-ignition temperature:             | no data available   |
| Decomposition temperature:             | no data available   |
| pH:                                    | no data available   |
| Kinematic viscosity:                   | no data available   |
| Solubility:                            | At 25 deg C g/100 g solvent: benzene 32.7 g; n-butylbenzene 11.3 g; n-dodecane less than 0.1 g; n-hexane 0.14 g; isopropylbenzene less than 7.0 g; kerosene 0.39 g; toluene 25.7 g; 2,2,4-trimethylpentane more than 0.3 g; xylene 27.9 g; water 0.0011 g |
| Partition coefficient n-octanol/water: | log Kow = 3.41 /Estimated/  |
| Vapour pressure:                       | 8.39E-05mmHg at 25°C  |
| Density and/or relative density:       | 1.394 g/cm <sup>3</sup>   |
| Relative vapour density:               | no data available   |
| Particle characteristics:              | no data available   |

## SECTION 10: Stability and reactivity

### Reactivity

Hydrolyzed by strong acid or base.

### Chemical stability

Stable under normal conditions of use; hydrolysis is very rapid in alkali with displacement of the terminal chlorine substituent, DT50 58 sec (pH 13, 25 deg C).

### Possibility of hazardous reactions

BARBAN is a carbamate ester. Carbamates are chemically similar to, but more reactive than amides. Like amides they form polymers such as polyurethane resins. Carbamates are incompatible with strong acids and bases, and especially incompatible with strong reducing agents such as hydrides. Flammable gaseous hydrogen is produced by the combination of active metals or nitrides with carbamates. Strongly oxidizing acids, peroxides, and hydroperoxides are incompatible with carbamates.

#### **Conditions to avoid**

no data available

#### **Incompatible materials**

no data available

#### **Hazardous decomposition products**

When heated to decomposition it emit very toxic fumes of /hydrogen chloride and nitrogen oxides/.

### **SECTION 11: Toxicological information**

#### **Acute toxicity**

Oral: LD50 Rabbit oral 600 mg/kg

Inhalation: no data available

Dermal: LD50 Rat percutaneous >1600 mg/kg

#### **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

**SECTION 12: Ecological information**

**Toxicity**

Toxicity to fish: LC50 Rainbow trout 0.6 mg/L (96 hr test) /Conditions of bioassay not specified in source examined

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: Barban was found to disappear more rapidly in non-autoclaved soil than in autoclaved soil(1). Barban was degraded to 3-chloroaniline by a soil isolate of *Penicillium* sp. The barban-hydrolyzing enzyme was presumed to be an amidase(2). It was determined that the alkaline hydrolysis of barban leads to the degradation product 3-chloroaniline(3).

**Bioaccumulative potential**

An estimated BCF of 160 was calculated for barban(SRC), using water solubility of 11 mg/L,(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high (SRC), provided the compound is not metabolized by the organism(SRP).

#### **Mobility in soil**

The Koc of barban is estimated as 1,200(SRC), derived from its water solubility of 11 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that barban is expected to have slight mobility in soil. Using TLC and aluminum oxide sorbent, the Rf value of barban was determined to be 0.5(4). The phenylcarbamate herbicides are much more water soluble than the substituted anilines(5). In spite of this, however, they are very immobile in soil systems. These compounds have been shown to be activated by adsorption to soil organic matter. Compounds in this group include barban. The mechanism of adsorption to soil organic matter is thought to involve hydrogen bonding between the carboxyl groups of the organic matter and the nitrogen and carbonyl oxygen of the carbamate(5).

#### **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: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

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

ADR/RID: 9 (For reference only, please check.)

IMDG: 9 (For reference only, please check.)

IATA: 9 (For reference only, please check.)

### **Packing group, if applicable**

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

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

IATA: III (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**

Not Listed.

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

Listed.

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

Not Listed.

### **(PICCS)**

Not Listed.

### **Vietnam National Chemical Inventory**

Listed.

### **IECSC)**

Not Listed.

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

Not 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](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/>

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