

## Chemical Safety Data Sheet MSDS / SDS

## Phthalic acid 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: Phthalic acid  
CAS: 88-99-3

**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**

Serious eye damage, Category 1

## GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H318 Causes serious eye damage

Precautionary statement(s)

Prevention

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

Response

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

Storage

none

Disposal

none

Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

Substance

Chemical name: Phthalic acid

Common names and synonyms: Phthalic acid

CAS number: 88-99-3  
EC number: 201-873-2  
Concentration: 100%

#### **SECTION 4: First aid measures**

##### **Description of necessary first-aid measures**

###### **If inhaled**

Fresh air, rest.

###### **Following skin contact**

Rinse and then wash skin with water and soap.

###### **Following eye contact**

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

###### **Following ingestion**

Rinse mouth.

##### **Most important symptoms/effects, acute and delayed**

**SYMPTOMS:** Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes, and respiratory passages. In high concentrations, it can cause narcosis. **ACUTE/CHRONIC HAZARDS:** This compound is an irritant of the skin, eyes, mucous membranes, and respiratory tract. It is narcotic in high concentrations. When heated, it decomposes to a compound which in the form of dust is an explosion hazard. Hazardous decomposition products include carbon oxides. (NTP, 1992)

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

Inhalation Exposure: Fresh air, rest. Skin Exposure: Remove contaminated clothes. Rinse and then wash skin with water and soap. Eye exposure: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. Ingestion: Rinse mouth.

#### **SECTION 5: Firefighting measures**

##### **Suitable extinguishing media**

Powder, water spray, foam, carbon dioxide.

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

This chemical is combustible. (NTP, 1992)

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

Use water spray, powder, alcohol-resistant foam, 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. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

#### **Environmental precautions**

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

#### **Methods and materials for containment and cleaning up**

Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting (extra personal protection: P1 filter respirator for inert particles).

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

#### **Precautions for safe handling**

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. 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**

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

## 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 spectacles.

#### Skin protection

Protective gloves.

#### Respiratory protection

Use local exhaust.

#### Thermal hazards

no data available

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

Physical state: Solid. Crystalline.

Colour: Colourless.

Odour: no data available

|   |   |
|---|---|
| Melting point/freezing point:                             | 191 °C. Atm. press.:1 013 hPa.  |
| Boiling point or initial boiling point and boiling range: | 289 °C. Atm. press.:1 013 hPa.  |
| Flammability:   | Combustible.  |
| Lower and upper explosion limit/flammability limit:       | no data available   |
| Flash point:  | 168 °C.   |
| Auto-ignition temperature:                                | no data available   |
| Decomposition temperature:                                | 191 °C  |
| pH:   | no data available   |
| Kinematic viscosity:                                      | no data available   |
| Solubility:   | less than 1 mg/mL at 68° F (NTP, 1992)  |
| Partition coefficient n-octanol/water:                    | log Pow = 0.73.   |
| Vapour pressure:  | 0 hPa. Temperature:25 °C. Remarks:Antoine Method.;0 hPa. Temperature:25 °C. Remarks:Modified Grain Method.;0 hPa. Temperature:25 °C. Remarks:Mackay Method. |
| Density and/or relative density:                          | 1.59 g/cm <sup>3</sup> . Temperature:15 °C.   |
| Relative vapour density:                                  | 5.73 (AIR= 1)   |
| Particle characteristics:                                 | no data available   |

## SECTION 10: Stability and reactivity

### Reactivity

The solution in water is a weak acid.

### Chemical stability

no data available

### Possibility of hazardous reactions

Combustible when heated. Dust explosion possible if in powder or granular form, mixed with air. PHTHALIC ACID is a carboxylic acid. This chemical is sensitive to exposure to extreme heat. This compound reacts violently with nitric acid. It is incompatible with sodium nitrite. It is also incompatible with oxidizers. (NTP, 1992).

### Conditions to avoid

no data available

### Incompatible materials

Mixtures of sodium nitrite and phthalic acid or phthalic anhydride explode violently on heating. A nitrite ester may have been produced.

### Hazardous decomposition products

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

## SECTION 11: Toxicological information

### Acute toxicity

Oral: LD50 - mouse (male/female) - > 5 000 mg/kg bw.

Inhalation: LC50 - rat (male/female) - > 5 058 mg/m<sup>3</sup> air.

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, skin and respiratory tract.

**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 - Danio rerio (previous name: Brachydanio rerio) - 560 mg/L - 7 d.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - > 640 mg/L - 48 h.

Toxicity to algae: EC0 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - >= 100 mg/L - 72 h.

Toxicity to microorganisms: EC50 - *Pseudomonas putida* - 213 mg/L - 16 h.

### **Persistence and degradability**

AEROBIC: After an acclimation of an activated sludge inoculum for 24 days, 95% of phthalate was consumed in a respiratory test(1). Phthalic acid completely degraded in 2 days in a screening test using a soil inoculum(2). Over 99% primary degradation was obtained in the semicontinuous activated sludge test of the Soap and Detergent Association(3). Degradation by some microorganisms is impeded when phthalic acid is adsorbed on particles such as aluminum oxide(4). Five day BOD studies have shown 78% degradation of phthalic acid(5). A biodegradation rate constant for phthalic acid of 1.56/day was measured in river water corresponding to a half life of 10.7 hrs(6). A half life of 2 days was measured in sludge amended soil(7). Phthalic acid rapidly degraded in Chalmers soil (1.96% organic carbon, pH 6.0); 100% decomposition, as determined by CO<sub>2</sub> evolution, was obtained after 53 days(8). In a river die-away test using water from the Mississippi River at St Louis, phthalic acid completely disappeared in 2.5 and 5 wks at concns of 12.5 and 50 mg/L, respectively(9). In another river die-away test using Missouri River water and carboxyl-labeled <sup>14</sup>C-phthalic acid, 66-92% mineralization was obtained in 32 days(10). Bacteria that grew aerobically on phthalic acid were found in sediment and water from the estuary of the Mississippi River indicating the potential for phthalic acid biodegradation in the marine environment(11).

### **Bioaccumulative potential**

An estimated BCF of 3 was calculated for phthalic acid(SRC), using a log K<sub>ow</sub> of 0.73(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 K<sub>oc</sub> values were determined for an acidic forest soil (Podzol, 4.85% organic carbon, pH 2.8), an agricultural soil (Alfisol, 1.25% organic carbon, pH 6.7) and a sublimnic soil (sediment from Lake Constance, Germany, 1.58% organic carbon, pH 7.1) as 31, 2 and 2, respectively(1). According to a classification scheme(2), these K<sub>oc</sub> values suggest that phthalic acid is expected to have very high mobility in soil. Phthalic acid adsorbs strongly to aluminum and iron oxides via a surface ligand exchange reaction(3). Adsorptivity is sensitive to pH; for aluminum oxide the fraction absorbed is >0.8 below pH 6 and falls below 0.1 above pH 7.5(3).

### **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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

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

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

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

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (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

**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**

Not 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](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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