

## Chemical Safety Data Sheet MSDS / SDS

## Fentin hydroxide

Revision Date:2025-06-14 Revision Number:1

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

## Product identifier

Product name : Fentin hydroxide  
CBnumber : CB5760970  
CAS : 76-87-9  
EINECS Number : 200-990-6  
Synonyms : Fentin,Fentin hydroxide

## 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

Acute toxicity - Category 3, Oral  
Acute toxicity - Category 3, Dermal  
Skin irritation, Category 2  
Serious eye damage, Category 1  
Acute toxicity - Category 2, Inhalation  
Specific target organ toxicity – single exposure, Category 3  
Carcinogenicity, Category 2  
Specific target organ toxicity – repeated exposure, Category 1  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1  
Reproductive toxicity, Category 2

## Label elements

## Pictogram(s)

□□□□

Signal word

Danger

**Hazard statement(s)**

H301 Toxic if swallowed

H311 Toxic in contact with skin

H315 Causes skin irritation

H318 Causes serious eye damage

H330 Fatal if inhaled

H335 May cause respiratory irritation

H351 Suspected of causing cancer

H361 Suspected of damaging fertility or the unborn child

H371 May cause damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

P201 Obtain special instructions before use.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

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

P320 Specific treatment is urgent (see ... on this label).

P330 Rinse mouth.

P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

**Prevention**

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P284 [In case of inadequate ventilation] wear respiratory protection.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P203 Obtain, read and follow all safety instructions before use.

P273 Avoid release to the environment.

**Response**

P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P316 Get emergency medical help immediately.

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.

P332+P317 If skin irritation occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

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.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P320 Specific treatment is urgent (see ... on this label).

P319 Get medical help if you feel unwell.

P318 IF exposed or concerned, get medical advice.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

#### **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	: Fentin hydroxide
Synonyms	: Fentin,Fentin hydroxide
CAS	: 76-87-9
EC number	: 200-990-6
MF	: C18H16OSn
MW	: 367.03

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **If inhaled**

Fresh air, rest. Refer for medical attention.

#### **Following skin contact**

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

#### **Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### **Following ingestion**

Give a slurry of activated charcoal in water to drink. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Give one or two glasses of water to drink. Refer for medical attention .

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

**SYMPTOMS:** Symptoms of exposure to this compound may include skin and mucous membrane irritation, glycosuria, hyperglycemia, dizziness, blurred vision, transient loss of consciousness and convulsions. Common symptoms are severe headaches, nausea, vomiting and epigastric pain. **ACUTE/CHRONIC HAZARDS:** This compound causes skin irritation on contact. When heated to decomposition (above 113° F) it emits acrid smoke and fumes. (NTP, 1992)

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

Exposure by inhalation: Fresh air, rest. Refer for medical attention. Exposure to skin: Remove contaminated clothes. Rinse & then wash skin with water & soap. Refer for medical attention. Exposure to eyes: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. Exposure by ingestion: Give plenty of water to drink. Refer for medical attention. from table

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## SECTION 5: Firefighting measures

### Extinguishing media

Use/ powder, water spray, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

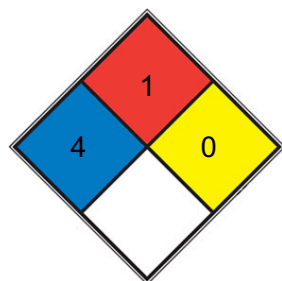
### Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

### Advice for firefighters

Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

### NFPA 704



■ HEALTH	4	Very short exposure could cause death or major residual injury (e.g. hydrogen cyanide, phosgene, methyl isocyanate, <a href="#">hydrofluoric acid</a> )
■ FIRE	1	Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. <a href="#">mineral oil</a> , ammonia)
■ REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, <a href="#">N<sub>2</sub></a> )
□ SPEC.		
□ HAZ.		

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: face shield, chemical protection suit and particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

### Environmental precautions

Personal protection: face shield, chemical protection suit and particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

### Methods and materials for containment and cleaning up

The compounds should not be allowed to enter drains or watercourses. Triphenyltin compounds

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## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. 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. Separated from food and feedstuffs. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. /Store/ separated from food & feedstuffs.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

Component	Fentin hydroxide			
CAS No.	76-87-9			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Germany (AGS)	0,0004 (1)	0,002 (1)	0,0008 (1)(2)	0,004 (1)(2)
	Remarks			
Germany (AGS)	(1) Inhalable fraction and vapour (2) 15 minutes average value			

#### 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 safety goggles or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Powder
Colour	Off-white
Odour	ODORLESS
Melting point/freezing point	118-120°C
Boiling point or initial boiling point and boiling range	no data available
Flammability	Combustible. Liquid formulations containing organic solvents may be flammable.
Lower and upper explosion limit/flammability limit	no data available
Flash point	400 deg C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Slightly soluble in alcohol, toluene
Partition coefficient n-octanol/water	log Kow = 3.53
Vapour pressure	3.5e-07 mm Hg at 122° F (NTP, 1992)
Density and/or relative density	1.54
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

Stable in the dark at room temperature. dehydration may occur on heating above 45 deg c. slowly decomp by sunlight, & more rapidly by u.v. light .

### **Possibility of hazardous reactions**

Combustible. Liquid formulations containing organic solvents may be flammable. NO open flames. TRIPHENYL TIN HYDROXIDE is sensitive to temperatures above 113°F and prolonged exposure to light. Incompatible with strongly acidic compounds. Also incompatible with oils used in oil spray formulations (NTP, 1992).

### **Conditions to avoid**

no data available

### **Incompatible materials**

Surfactants, spreaders, or stickers should not be added because phytotoxicity may result. Do not use with oil sprays.

### **Hazardous decomposition products**

When heated to decomp it emits acrid smoke and fumes.

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 Rat male oral 171 mg/kg
- Inhalation: LC50 Rat inhalation 60.3 mg/cu m air/4 hr
- Dermal: LD50 Rabbit 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**

Cancer Classification: Group B2 Probable Human Carcinogen

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is severely irritating to the eyes. The substance is irritating to the skin and respiratory tract. The substance may cause effects on the central nervous system.

### **STOT-repeated exposure**

The substance may have effects on the immune system. This may result in impaired functions. Animal tests show that this substance possibly

causes toxicity to human reproduction or development.

### Aspiration hazard

A harmful concentration of airborne particles can be reached quickly on spraying or when dispersed, especially if powdered.

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## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: LC50 *Lepomis macrochirus* (bluegill) 23 ug/l/96 hr @ 24 deg C (95% confidence limit 19-28 ug/l), wt 0.5 g /Technical, 100%/  
/Static bioassay

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

Triphenyltin hydroxide may be susceptible to biodegradation based upon the biodegradability of other triphenyltin compounds in soil(SRC).

For example, 14C-phenyl ring-labelled triphenyltin acetate is degraded to inorganic tin in soil presumably by biodegradation since carbon dioxide was evolved and the breakdown did not occur in sterile soil(1). Also, triphenyltin fluoride has been observed to degrade in soil faster under aerobic than anaerobic conditions(1).

### Bioaccumulative potential

In rainbow trout, a BCF of about 800 was observed after a 4-day exposure(1). The uptake and elimination rates of radiolabeled triphenyltin hydroxide in guppies were 41 l/kg-day and 0.014/day, giving a BCF (uptake: elimination ratio) of 2900 l/kg (wet weight) during 30 days of exposure(1). For rainbow trout larvae the uptake and elimination rates were 22 l/kg-day and 0.031/day, respectively giving a BCF of 650 ml/g after 4 days; the lower BCF in the trout than the guppies being a result of the higher elimination rate. Since equilibrium was not reached, the bioconcentration factor was underestimated. The log BCFs of triphenyltin in crucian carp obtained in a 7-day experiment were 1.70 (muscle), 1.70 (vertebra); 2.05 (liver); and 1.49 (kidney)(2). In studies in which the bioaccumulation and elimination of triphenyltin in Red Sea bream (*Pagrus major*) was by direct uptake from water, from diet, and from both simultaneously, about a quarter of the bioaccumulation was due to dietary uptake(3). The bioaccumulation factor was 0.257(3). The elimination rate was 0.020/day and was independent of the source of uptake, water or diet. Bioaccumulation was also independent of the form of triphenyltin in the diet(3). Minnow (*Phoxinus phoxinus*) embryos/larvae and freshly hatched larvae were exposed to triphenyltin chloride in Lake Lucerne, Switzerland water at 16 deg C(4). The BCF for embryo larvae was 530 at the end of a 192 hr uptake period. Newly hatched larvae had BCFs of 457 and 930 after 96 and 144 hours. At this time the BCF had not reached a plateau so the actual BCF was higher(4). While uptake of triphenyltin from water was rapid, elimination was absent during a 96-hr depuration period. The concn of the metabolites monophenyltin and diphenyltin were very low(4). According to a classification scheme(5), these BCF values suggest the potential for bioconcentration in aquatic organisms is high(SRC).

### Mobility in soil

The Koc for triphenyltin hydroxide is 2,000(SRC), using a measured log Kow of 3.53(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that triphenyltin hydroxide is expected to have low mobility in soil(SRC). If triphenyltin hydroxide is released to soil, it either exists as, or is rapidly converted to oxides, hydroxides, carbonates or hydrated cations(4). Oxides, hydroxides, carbonates or cations are not expected to leach through soil into groundwater(SRC). In a laboratory soil leaching study, triphenyltins were strongly attached to soil(5). This also suggests that triphenyltins (such as triphenyltin hydroxide) may be expected to have low mobility in soil(SRC). The Freundlich parameters, log k and 1/n, for triphenyltin to sediment were 1.81 and 0.793, respectively(6).



## 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: UN3019 (For reference only, please check.)

IMDG: UN3019 (For reference only, please check.)

IATA: UN3019 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IMDG: ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

IATA: ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### Packing group, if applicable

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

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

IATA: I (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**

Listed.

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

Listed.

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

Listed.

#### **PICCS**

Listed.

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

Listed.

#### **IECSC**

Not 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?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/>

## Other Information

Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home.

### 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.