



# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Metribuzin

### 1.2 Other means of identification

**Product number** -  
**Other names** 4-amino-6-tert-butyl-4,5-dihydro-3-methylthio-1,2,4-triazin-5-one; 4-amino-6-tert-butyl-3-methylsulfanyl-1,2,4-triazin-5-one; Lexone DF

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.  
**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Shanghai Yien Chemical Technology Co., Ltd  
**Address** Building 6, 28 Yingong Road, Fengxian District, Shanghai  
Chemical Industry Zone, Shanghai, 201400, China  
**Telephone** +86-400-133-2688

### 1.5 Emergency phone number

**Emergency phone number** +86-400-133-2688  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word** Warning  
**Hazard statement(s)** H302 Harmful if swallowed  
H410 Very toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

<b>Prevention</b>	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment.
<b>Response</b>	P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P391 Collect spillage.
<b>Storage</b>	none
<b>Disposal</b>	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.

**2.3 Other hazards which do not result in classification**

no data available

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**SECTION 3: Composition/information on ingredients****3.1 Substances**

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Metribuzin	Metribuzin	21087-64-9	244-209-7	100%

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**SECTION 4: First-aid measures****4.1 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**

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

**Following ingestion**

Rinse mouth. Rest.

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

Exposure Routes: inhalation, ingestion, skin and/or eye contact Target Organs: central nervous system, thyroid, liver (NIOSH, 2016)

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

Skin decontamination: 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.

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**SECTION 5: Fire-fighting measures****5.1 Suitable extinguishing media**

Use water spray, powder.

**5.2 Specific hazards arising from the chemical**

Combustible.

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

Use water spray, powder.

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

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

Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

### **6.2 Environmental precautions**

Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

### **6.3 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.

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

### **7.1 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.

### **7.2 Conditions for safe storage, including any incompatibilities**

Store in an area without drain or sewer access. Estimated shelf life in excess of 2 yr under normal storage conditions.

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

### **8.1 Control parameters**

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

TLV: 5 mg/m<sup>3</sup>, as TWA; A4 (not classifiable as a human carcinogen)

#### **Biological limit values**

no data available

### **8.2 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.

### **8.3 Individual protection measures, such as personal protective equipment (PPE)**

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

Wear safety spectacles.

#### **Skin protection**

Protective gloves.

#### **Respiratory protection**

Use ventilation (not if powder), local exhaust or breathing protection.

#### **Thermal hazards**

no data available

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

<b>Physical state</b>	Metribuzin is a colorless crystalline solid. Used as an herbicide. (NIOSH, 2016)
<b>Colour</b>	Colorless crytals
<b>Odour</b>	Weak characteristic odor
<b>Melting point/freezing point</b>	125°C
<b>Boiling point or initial boiling point and boiling range</b>	312.4°C at 760 mmHg
<b>Flammability</b>	Noncombustible Solid
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	142.7°C
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	0.1 % (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	log Kow= 1.7
<b>Vapour pressure</b>	0.000531mmHg at 25°C
<b>Density and/or relative density</b>	1.28
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Decomposes on burning. This produces toxic fumes including nitrogen oxides and sulfur oxides.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

NonflammableA triazine derivative. Amines are chemical bases. They neutralize acids to form salts plus water. These acid-base reactions are exothermic. The amount of heat that is evolved per mole of amine in a neutralization is largely independent of the strength of the amine as a base. Amines may be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. Flammable gaseous hydrogen is generated by amines in combination with strong reducing agents, such as hydrides.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

This compound is incompatible with the following:None reported (NIOSH, 1997)

### 10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /nitrogen oxides and sulfur oxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 1100 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rat percutaneous >20,000 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 D Not Classifiable as to Human Carcinogenicity

### Reproductive toxicity

no data available

### STOT-single exposure

Exposure at high levels could cause depression of the central nervous system.

### STOT-repeated exposure

no data available

### Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 Rainbow trout 64 mg/l/96 hr and bluegill sunfish 80 mg/l/96 hr
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

In mineral and muck soils, metribuzin metabolism via deamination and thiodealkylation produced: 6-(1,1-dimethylethyl)-3-methylthio-1,2,4-triazin-5-(4H)-one metribuzin; 4-amino-6-(1,1-dimethylethyl)-1,2,4-triazin-3,5-(2H,4H)-dione 3,5-diketo; and 6-(1,1-dimethylethyl)-1,2,4-triazin-3,5-(2H,4H)-dione deaminated diketo. Over a pH range of 4.5 to 6.9 in sandy clay loam, microbial degradation gave (14)CO<sub>2</sub> from (14)C ring-labeled metribuzin. It was also observed that metribuzin degradation by soil microorganisms decreased with increasing soil pH.

### 12.3 Bioaccumulative potential

The bioconcentration factor (BCF) of metribuzin in the Golden ide fish (*Leuciscus idus melanotus*) was experimentally determined to be 10 in a 3 day static test(1). According to a classification scheme(2) and this BCF value, metribuzin is not expected to bioconcentrate in aquatic organisms(SRC).

### 12.4 Mobility in soil

The average Koc of metribuzin is 60(1). Parent metribuzin was very mobile in sandy (0.58% OC), sandy loam (0.64% OC), silt loam (1.7% OC), and clay loam (1.3% OC) soils with adsorption(1). Freundlich constant values of 0.25, 0.02, 0.22, and 0.20, respectively desorption Freundlich values were 0.56, 0.14, 0.51, and 0.41, respectively(1). Adsorption Koc were 47, 3, 15, and 17 and desorption Koc values were 106, 24, 33, and 36, respectively(1). The Koc values for metribuzin in Alaskan subarctic agricultural silt loam soils ranges from 34-56(2). Experimental Koc values have been measured for sand (Koc=47; 1% OM, pH 4.3), sandy loam (Koc=3; 1.1% OM, pH 6.6), silt loam (Koc=14; 3% OM, pH 5.9), and clay loam (Koc=17; 2.2% OM, pH 6.4) soils(1). Metribuzin has high affinity for soil organic matter, but is less tightly adsorbed to clay(1). Adsorption of metribuzin decreases as soil pH increases(1). According to a classification scheme(4), these Koc values suggest that metribuzin is expected to have high mobility in soil(SRC).

## 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 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

### 14.1 UN Number

ADR/RID: UN3077 (For reference only, please check.)

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

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

### 14.2 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.)

### 14.3 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.)

### 14.4 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.)

### 14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Metribuzin	Metribuzin	21087-64-9	244-209-7
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

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## SECTION 16: Other information

### Information on revision

**Creation Date** July 15, 2019

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### 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/>

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to*

*appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*