

SAFETY DATA SHEETS

Mesotrione 98% TC

No.: 111048
Version: 4
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SECTION 1: IDENTIFICATION

Product identifier	Mesotrione 98% TC
Other means of identification	N/A
Recommended use	Herbicide
Supplier's details	Zhejiang Heben Pesticide & Chemicals Co., Ltd
Address	Liandun Road, Houjing, Yanjiang Industrial Area, Wenzhou, Zhejiang, China
Telephone No	+86-577-88797730; +86-577-88797721
Fax No.	+86-577-88797739
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Emergency phone number	+86-532-83889090

SECTION 2: HAZARDS IDENTIFICATION

2.1 GHS classification of the substance or mixture (Ninth Revised Edition, 2021)

Physical hazards	None	None
Health hazards	Acute toxicity, oral, Category 5	H303
	Serious eye damage/eye irritation, Category 2B	H320
Environmental hazards	Acute aquatic toxicity, Category 1	H400
	Chronic aquatic toxicity, Category 1	H410

2.2 GHS label elements, including precautionary statements

Hazard pictograms



Signal word

Warning

Hazard statement (s)

H303

May be harmful if swallowed

H320

Cause eye irritation

H400

Very toxic to aquatic life.

H410

Very toxic to aquatic life with long lasting effects.

Prevention statements

P264	Wash hands and face thoroughly after handling.
P265	Do not touch eyes.
P273	Avoid release to the environment.

Response statements

P301+P317	IF SWALLOWED: Get medical help.
P337+P317	If eye irritation persists: Get medical help.
P391	Collect spillage.

Storage statements

P403+P233	Store in the well-ventilated place, keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with local regulations.
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2.3 Other hazards which do not result in classification

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Common name, synonyms	Chemical identity	CAS number and other unique identifiers	The concentrations of the ingredients
Mesotrione	2-(4-mesyl-2-nitrobenzoyl)cyclohexane-1,3-dione (IUPAC)	CAS No.: 104206-82-8 EC No.: 609-064-00	≥98%
Other non-hazardous ingredients			To 100%

SECTION 4: FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

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

Eyes: For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport.

Inhalation: Move affected person to fresh air and keep at rest until recovered. If not breathing, give

artificial respiration and get to a doctor.

Ingestion: Do not induce vomiting if the person is conscious. Give glass of water. Get to a doctor.

4.2 Most important symptoms/effects, acute and delayed

No such information is reported.

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

No antidote, no special treatment, please treat it symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide, water spray, and foam.

5.2 Specific hazards arising from the chemical

May produce toxic fumes of nitrogen oxides, hydrogen sulfide, oxides of sulfur, carbon dioxide and carbon monoxide if burn.

5.3 Special protective equipment for firefighters

Should wear full-protective clothing, and self-contained breathing apparatus. Fight fire from safe distance and protected location. Avoid (reject) fire-fighting water to enter environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear full protective clothing and self-contained breathing apparatus. Control the spill at its source. Dike area and absorb small spills with materials such as sand, sawdust, Zorb all, or dirt and place in suitable containers for recovery or disposal. Remove all contaminated clothing promptly and wash exposed body areas thoroughly with soap and water immediately after handling. Thoroughly launder clothing before reuse. Do not take clothing home to be laundered.

6.2 Environmental precautions

Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems of any body of water. Keep spills and cleaning run-off out of municipal sewers and open bodies of water.

6.3 Methods and materials for containment and cleaning up

If there is contamination of crops or waterways, advise emergency services or state department of agriculture.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid direct or prolonged contact with skin and eyes. Do not breathe mist. Do not ingest. It is recommended that wear full protective clothing including face mask, face shield and gauntlets, all skin areas should be covered, when handling this product.

Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. And take a bath or wash hands completely with soap after use. Remove

contaminated clothing and protective equipment before entering eating areas.

Prevents handling of incompatible substances or mixtures when use this product. Minimize the release of this product to the environment when handling this product.

7.2 Conditions for safe storage, including any incompatibilities

Store the material in a well-ventilated, dry, cool, out of light and secure area, out of reach of children and domestic animals, and in sealed original containers. Do not store food, beverages or tobacco products in the storage area. Store this product away from the incompatible materials, explosive atmospheres, corrosive conditions, fire and heat, etc.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Contain no substances with occupational exposure limit values.

8.2 Appropriate engineering controls

Use only in an enclosed system. Use local exhaust ventilation. Safety shower. Use explosive dust handling controls.

8.3 Individual protection measures

Industrial hygiene: Remove and wash contaminated clothing promptly. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.

Personal protective equipment

Respiratory protection:

Wear respirator with a particle filter mask (protection factor 20) conforming to European Norm EN149FFP3 or EN140P3 or equivalent.

Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Protective gloves: Nitrile rubber gloves;

Eye protection: Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Solid
Color	Light yellow
Odor	No characteristic odor
Melting point / freezing point	165 °C
Boiling point / initial boiling point and boiling range	Decomposes before boiling
Flammability	Not highly flammable
Lower and upper explosion limit/ flammability limit	No data available.
Flash point	Not determined

Auto-ignition temperature	Not expected to self ignite
Decomposition temperature	No data available.
pH value	2.0-6.0
Kinematic viscosity	Not known
Solubility	2.2 (pH 4.8), 15 (pH 6.9), 22 (pH 9) (g/l, 25°C) in water.
Partition coefficient n-octanol/water (log value)	Kow log P =0.11(20 °C)
Vapour pressure	5.69×10^{-3} mPa (20 °C)
Density and/or relative density	1.49g/cm ³ (20 °C)
Relative vapor density	No data available
Particle characteristics	No data available

9.2 Other information

Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No reactivity under normal conditions.

10.2 Chemical stability

This product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

This product does not react or polymerize, releasing excess pressure or heat, or creating other hazardous conditions.

10.4 Conditions to avoid

Avoid fire, feed, food and beds of water.

10.5 Incompatible materials

Not compatible with strong oxidizing agents.

10.6 Hazardous decomposition products

When involves in a fire, maybe release oxides of carbon, sulfur and nitrogen, hydrogen sulfide, and other toxic nitrogen compounds on combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral LD₅₀ for rats > 5000 mg/kg (*Data From The e-pesticide manual (Thirteenth Edition) Version 3.0*)

Acute dermal LD₅₀ for rats >2000 mg/kg (*Data From The e-pesticide manual (Thirteenth Edition) Version 3.0*)

Acute inhalation LC₅₀ (4h) for rats >5mg/L (*Data From The e-pesticide manual (Thirteenth Edition) Version 3.0*)

Skin corrosion/irritation	No irritant to skin (Rabbit) (<i>Data From The e-pesticide manual (Thirteenth Edition) Version 3.0</i>)
Serious eye damage/irritation	Mild irritant to eyes. (Rabbit) (<i>Data From The e-pesticide manual (Thirteenth Edition) Version 3.0</i>)
Respiratory or skin sensitization	Not a skin sensitizer (Maximisation test) (<i>Data From The e-pesticide manual (Thirteenth Edition) Version 3.0</i>)
Germ cell mutagenicity	Not mutagenic.
Carcinogenicity	Not carcinogenic.
Reproductive toxicity	In mice, the offspring's NOAEL was 2 mg/kg bw/day based on testes and kidney weight changes, while parental and reproductive NOAELs were 10 mg/kg bw/day based on increased tyrosinaemia and reduced successful mating respectively.
STOT-single exposure	No available data.
STOT-repeated exposure	No available data.
Aspiration hazard	No available data.
Further information	No available data.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Eco-toxicity

Birds	Acute oral LD ₅₀ for bobwhite quail >2000, mallard ducks >5200 mg/kg.
Fish	Acute LC ₅₀ (96 h) for <i>Lepomis macrochirus</i> >120 mg/l; NOEC (21d) for <i>Oncorhynchus mykiss</i> 12.5mg/l. (<i>Data from PPDB</i>)
Daphnia	Acute EC ₅₀ (48h) for <i>Daphnia magna</i> > 622mg/l; NOEC (21d) for <i>Daphnia magna</i> 180mg/l. (<i>Data from PPDB</i>)
Algae	Acute EC ₅₀ (72h) for <i>Raphidocelis subcapitata</i> 3.5mg/l. (<i>Data from PPDB</i>)
Bees	Contact acute LD ₅₀ for <i>Apis mellifera</i> >100µg/bee;

Oral acute LD₅₀ for *Apis mellifera* >11µg/bee. (Data from PPDB)

Worms Acute LC₅₀ (14d) for *Eisenia foetida* >2000mg/kg;
NOEC for *Eisenia foetida* 10.85mg/kg.(Data from PPDB)

Other aquatic plants Acute EC₅₀ (7d) for *Lemna minor* 0.022mg/l. (Data from PPDB)

Some of above data is from *e-The Pesticide Manual, Thirteenth Edition*

12.2 Persistence and degradability

DT₅₀ in aerobic soils 19.6 d. DT₅₀ from water 24d. The biodegradation pathway of mesotrione was examined using bacterial strains of *Bacillus* sp.; 4-methylsulfonyl-2-nitrobenzoic acid and 2-amino-4-methylsulfonyl benzoic acid were identified as degradation products.

12.3 Bio-accumulative potential

An estimated BCF of 3 was calculated for mesotrione(SRC), using a measured log Kow range of 0.90 at pH 5 to <-1.0 at pH 9 and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Koc values for mesotrione were measured in 15 soils from the US and Europe and ranged from 15 to 390. Koc values of 22.4 to 183.9 were measured in four different loam soils. According to a classification scheme, these Koc values suggest that mesotrione is expected to have very high to moderate mobility in soil.

12.5 Other adverse effects

None

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product

The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

13.2 Contaminated packaging

Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO:

UN number: 3077

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S
(Mesotrione 20%)

Transport hazard class: 9

Packing group: III

Environmental hazards: Marine pollutant

Special precautions for user: None.

Transport in bulk according to IMO instruments: Not applicable

SECTION 15: REGULATORY INFORMATION

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

WHO-classification: III (Slightly hazardous)

This product is not subject to any prohibitions or restrictions in China.

SECTION 16: OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.