

MATERIAL SAFETY DATA SHEET

(MSDS)

Metalaxyl

1. Chemical Product Identification

Product Name: Metalaxyl

Content: 98%;35WP

Molecular Formula: C₁₅H₂₁NO₄

Molecular Weight: 279.34

Structural Formula:

Chemical Name: Methyl N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-DL-aalaninate

Color: white

Odor: slight specific odor

CAS No.: 57837-19-1

UN No.: 2588

2. Composition / Information On Ingredients

Composition CAS No. Content %

Metalaxyl 57837-19-1 98.0

Others ingredients 2.0

3. Hazards Identification

Component Sympol R phrases

Metalaxyl T R25/36/38

More important danger for the man: none

Dangers for the environment: toxic to fish and bees

Physical-chemical dangers: none

4. First Aid Measures

Skin: wash thoroughly with soap and water.

Eyes: flush with plenty of water for at least 15 minutes. See medical attention if irritation develops or persists.

Inhalation: move to fresh air.

Ingestion: if oral contamination, drink 1-2 glasses of water and milk. Call physician/poison control center immediately.

5. Fire-Fighting Measures

Extinguishing media:

To be used: dry chemical, foam, carbon dioxide.

Don't use: not applicable

Particular risk: not applicable

Measures of personal protection: safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Environmental cautions

EX: prevent the contamination of the floor and of beds of water.

6. Accidental Release Measures

Personal cautions: safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Cleaning methods

EX: pick up for sweeping or aspiration avoiding the powder formation. Transfer to a properly labeled deposit that will be closed and sealed until the recovery of elimination of the product.

7. Handling And Storage

Handling: do not apply to humans, their clothing, or bedding. Do not contaminate food or use on household tanks.

Storage: Technical protective measures: store in original container only in cool, dry, well-ventilated, secure area at minimum storage temperatures and out of reach of children and animals.

Fire and explosion protection: the area must be far from fire and flammable materials

Environmental cautions

EX: prevent the contamination of the floor and of beds of water.

8. Exposure Controls / Personal Protection

Personal protective equipment

Respiratory protection: approved respirator

Protective gloves: rubber gloves

Eye protection: goggles

Industrial hygiene: appropriate protective clothing.

9. Physical And Chemical Properties

Melting point: 63.5-72.3°C

Boiling point : 295.9°C

Relative Density: 1.20@20°C

Vapor pressure : 0.75mPa@25°C

Partition coefficient KowlogP=1.75@25°C

Water solubility: 7.1g/L

Other solubilities: petroleum ether v.s.; alcohol v.s.; benzene v.s.

PH value: 5-8

Flash point: 155 °C

Ignition temperature: not applicable

10. Stability And Reactivity

Conditions to avoid: fire, feed, food and beds of water

Products to avoid: strong oxidizing agents, alkalis and acids.

Thermal decomposition: not applicable

Hazardous decomposition products: oxides of carbon and nitrogen and other toxic nitrogen compounds on combustion.

Hazardous reaction: none

11. Toxicological Information

Contact with the skin: Irritative to skin

Contact with the eyes: Eyes become red

Inhalation: Irritative to respiratory tract

Ingestion: nausea, vomiting and breathing difficulty.

Sharp toxicity: not applicable

Effects for chronic exhibition

Chronic toxicity: A 90-day study of rats exposed to 0.1 to 2.5 mg/kg/day in diet, showed some cellular enlargement in the liver at the highest dose. In a similar study with dogs fed diets of approximately 0.04 to 0.8 mg/kg/day for 6 months, the dogs were adversely affected by the highest dose. Manifestations included increase blood alkaline phosphatase and increased liver- to- brain weight ratio.

Reproductive effects: A three- generation rat study where animals were fed up to 2.5 mg/kg/day showed no compound related maternal toxicity or reproductive effects.

These data suggest that metalaxyl is unlikely to cause reproductive effects.

Teratogenic effects: Rats given a dosage of 120 mg/kg/day by stomach tube on days 6 to 15 of gestation exhibited no embryotoxicity or teratogenicity, nor did rabbits given a dosage of 20 mg/kg/day by the same route on day 6 to 8. These data suggest that metalaxyl is not teratogenic.

Mutagenic effects: Studies including a dominant lethal assay in male mice indicate that metalaxyl has no mutagenic potential.

Carcinogenic effects: Available studies of the carcinogenicity of metalaxyl are inconclusive.

Organ toxicity: The liver is the primary target organ for metalaxyl in animal systems.

Sensitisation: non-sensitive

12. Ecological And Ecotoxicological Information

Fate in humans and animals:

Studies with rats and goats showed rapid metabolism and excretion via the urine and feces. Metalaxyl is metabolized to a variety of products before excretion. Forty-day feeding studies with dairy cattle at 15 ppm/day, showed less than 0.01 ppm was stored in the muscle and fat. The liver contained 0.13 to 0.20 ppm and the kidney 0.26 to 0.83 ppm. Chickens fed for 28 days at 5 ppm in the diet had less than 0.05 ppm in the eggs, skin, fat, breast, and thigh, and less than 0.1 ppm in the liver.

Effects on birds: Metalaxyl is reported to be practically nontoxic to birds.

Effects on aquatic organisms: Metalaxyl is practically nontoxic to freshwater fish. The 96-hours LC₅₀ values in rainbow trout, carp, and bluegill are all above 100 mg/L.

Freshwater aquatic invertebrates are slightly more susceptible to metalaxyl. Daphnia magna, a small freshwater crustacean, has an LC₅₀ of 12.5 to 28 mg/L, depending on the product formulation. This indicates that metalaxyl is slightly toxic to this organism. There is little tendency for metalaxyl to accumulate in the edible portion of fish.

Metalaxyl did not accumulate beyond seven times the background concentration and it was quickly eliminated after exposed fish were placed in fresh (metalaxyl-free) water.

Effects on other organisms: Metalaxyl is nontoxic to bees.

13. Disposal Considerations

Product: dispose of in compliance with all state and local laws and regulation.

14. Transport Information

PG: III

UN No.: 2588

CLASS: 6.1

15. Regulatory Information

Symbol: T

R phrases: R 23/25/36/38

S phrases: S 2/7/9/13/16/20/21/22/23

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 produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.