



17/ F, Seaview Plaza, No. 283 Shau Kei Wan Road, Shau Kei Wan
Hong Kong. Tel: 2571-3011, Fax: 2571-3410 Email:sales@willowoodhk.com

Material Safety Data Sheet (MSDS)

Part I Chemical Product and Company Identification

Product name: Metsulfuron-methyl TC

Usage: Herbicide

Part II Composition/Information on Ingredients

Pure Compound

Chemical name: 2-[[[(4-Methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl] amino] sulfonyl] benzoic acid methyl ester

Hazardous components	Concentration	CAS No.
<u>Metsulfuron-methyl</u>	<u>>96%</u>	<u>74223-64-6</u>

Part III Hazards Identification

Hazard class: Class 6.1, toxic substances.

Routes of entry: Inhalation, ingestion and skin absorption.

Health hazard: It doesn't lead to systemic poisoning except the intake of a large amount of this product. It has slight irritation to eyes, skin and mucosa.

Environmental hazard: Not available

Danger of burning and exploding: It's combustibile in the presence of open flames and high heat. Decompose in the presence of high heat and give off highly toxic smoke and gas.

Part IV First Aid Measures

Skin contact: Take off all contaminated clothing immediately. Wash off thoroughly with soap and water. If poisoned, send to hospital in time and treat symptomatically.

Eye contact: Open the eyelids and wash eyes for 15 minutes with running water. If poisoned, send to hospital in time and treat symptomatically.

Inhalation: Remove to fresh air. If poisoned, send to hospital in time and treat symptomatically.

Ingestion: If accidentally swallowed, drink an appropriate amount of warm water to induce vomiting. If poisoned, send to hospital in time and treat symptomatically.

Part V Fire-Fighting Measures

Hazard property: It's combustibile in the presence of open flames and high heat. Decompose in the presence of high heat and give off highly toxic smoke and gas.

Poisonous combustion products: Not available

Fire-Extinguishing method and fire extinguisher: Foam, dry powder and sandy soil

Advice on fire-fighting: Not available

Part VI Accidental Release Measures



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Emergency treatment: Segregate the contaminated area and place warning marks around this area. It is suggested that *personnel in emergency treatment* services should wear self-contained breathing apparatus and chemical protective suits; avoid direct contact with the leakage. Absorb the leakage with the mixture of sandy soil or other noncombustible sorbents, and then transfer to a safe place; or wash with large amount of water, and discharge the diluted sewage into waste water treatment system. If significant leakage occurs, recycle the leakage or abandon it after innocuous treatment.

Part VII Handling and Storage

Advice on handling: It is a poisonous pesticide, and can not be mixed with food or feedstuff. No smoking, drinking or eating in workplaces. *Handle with care* when loading and unloading during transportation to protect the package and containers from damages. Pay attention to personal protection during split charging and transportation. Avoid the pollution of water sources and fish ponds when applying it. Immediately wash the skin that comes into contact with it by using soap and water, and wash the eyes that contact with it by using water. Loosen clothes after the inhalation of liquid product, induce vomiting, and then send to hospital.

Advice on storage: It should be stored in cool and ventilated warehouses. Keep away from fire and heat sources. There should be specific people in charge of its safekeeping. Avoid moisture and rain. Avoid any direct exposure to sunlight. It should be stored separately with oxidants, acids and edible chemical raw materials. Do not mix with food, seeds, feedstuff or various daily necessities. No smoking, drinking or eating in workplaces. *Handle with care* when loading and unloading during transportation to protect the packages and containers from damages. Pay attention to personal protection during split charging and transportation.

Part VIII Exposure Controls / Personal Protection

Maximum allowable concentration: Not available

Monitoring method: Not available

Engineering control: Hermetical operation and local exhaust ventilation.

Respiratory system protection: When production, operation or applying it for agricultural purposes, it is suggested to wear anti-poison respirators. During emergency rescue or escape, it is suggested to wear self-contained breathing apparatus.

Eye protection: Wear protective safety spectacles.

Body protection: Wear relevant protective clothes.

Hand protection: Wear chemical safety gloves.

Other protection: No smoking, eating or drinking in workplaces. After operation, take a bathe and change clothes. Pay attention to personal hygiene.

Part IX Physical and Chemical Properties

Appearance and characteristics: Colorless crystal (the technical product is off-white solid, with slight odor of ester).

PH value: 3.0~6.0 Melting point (°C): 158°C

Relative density (water=1): 1.47

Boiling point (°C): Not available

Relative vapor density (air=1): Not available

Saturated vapor pressure (kPa): 3.3×10^{-10} (25°C)

Combustion heat (kJ/mol): Not available

Critical temperature (°C): Not available

Critical pressure (MPa): Not available

Value of octanol /water partition coefficient: 0.018 (pH7)

Flash point (°C): Not available

Ignition temperature (°C): Not available

Upper explosive limit% (V/V): Not available

Lower explosive limit% (V/V): Not available

Solubility: Water 0.55 (pH5), 2.79 (pH7), 2.13 (pH9) (g/L, 25°C), xylene 0.58, hexane 0.79, ethanol 2.3, methanol 7.3, acetone 36, dichloromethane 121 (g/L, 20°C).

Main application: As an agricultural sulfonylurea high-viability broad-spectrum selective systemic conductive wheat field herbicide, it is used to prevent and kill amur foxtail, brooklime, chickweed, vetch, capsella bursa-pastoris, descourainia sophia, pigweed, culrage, lapsana apogonoides, alligator weed and other weeds.

Part X Stability and Reactivity

Stability: It is stable to air at 140°C, and stable in neutral and alkaline mediums at 25°C, pKa3.3.

Forbidden combination material: Not available

Conditions to avoid contact: Store separately and keep away from fire sources.

Polymerized Danger: Not available

Decomposition products: Not available

Part XI Toxicological Information

Acute toxicity: The oral LD₅₀ is more than 5000mg/kg in female and male rats; and the acute dermal LD₅₀ is more than 5000mg/kg in rats.

Subacute and chronic toxicity: The subacute tests show: it has no lethality or adverse histopathological effects; the non-effect level in 2-year oral test in rats is 50mg/kg per day.

Irritability: It has no irritation to skin or eyes of rabbits.

Allergenicity: Not available

Mutagenicity: No mutagenicity.



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Teratogenicity: Not available

Carcinogenicity: Not available

Part XII Ecological Information

Ecotoxicity: The LC₅₀ (96h) is 34.25mg/L in rainbow trout and more than 150mg/L in bluegill; the LD₅₀ is more than 25µg in bees; the acute oral LD₅₀ is more than 5000mg/kg in mallards, and the LC₅₀ (feeding for 8 days) is more than 5620mg/kg in mallards and bobwhite quails.

Biodegradability: Its half-life in soil is 1~5 weeks. Acid soil, high temperature and high humidity accelerate its degradation.

Abiotic degradation: Not available

Bioconcentration or bioaccumulation: Not available

Part XIII Disposal Considerations

Properties of waste: Hazardous waste.

Disposal information: Clean and collect the recyclable, treat the unrecyclable according to relevant regulations. Avoid the waste from polluting water sources.

Advice on disposition: Not available

Part IX Transport Information

Dangerous goods No.: 61904

UN No.: Not available

Packing mark: Poison

Packing group: III

Packing method: Woven bags lined with plastic bags, or packed according to customers' requirements.

Advice on transportation: Handle with care when loading and unloading during transportation to guarantee packages intact. Avoid any damages or leakage.

Part XV Regulatory Information

Regulatory information: Regulations on the Control over Safety of Dangerous Chemicals (the State Council's No. 344 Decree), Classification and Labels of Dangerous Chemical Substances Commonly Used GB13690-1992, Administrative Regulations of the People's Republic of China on Pesticides, Measures for the Implementation of Administrative Regulations of the People's Republic of China on Pesticides.

Part XVI Other Information

Other information: None