



SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

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MATERIAL SAFETY DATA SHEET OF METOLACHLOR 96% TC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

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Product name: Metolachlor 96% TC

Product use: Herbicide

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Technical material (TC)

Active Ingredients: Metolachlor

Chemical Abstracts name:

2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide

IUPAC name:

2-chloro-6'-ethyl-N-(2-methoxy-1-methylethyl)aceto-o-toluidide

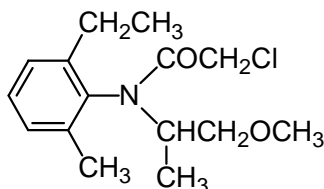
Chemical Family: chloroacetamide

CAS NO. 51218-45-2

Molecular Formula: C₁₅H₂₂ClNO₂

Molecular Weight: 283.8

Structural Formula:



Composition:

INGREDIENT	CAS NO	PROPORTION
Metolachlor	51218-45-2	96% Min
Inert ingredients	Not available	Up to 100%

Other ingredients determined not to be hazardous



3. HAZARDS IDENTIFICATION

Emergency overview: Caution! Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes. Harmful: May cause lung damage if swallowed. Avoid contact with skin and eyes.

Routes of entry: Inhalation, ingestion, eye and skin contact.

Health hazards:

Inhalation: Breathing vapour can cause headaches, dizziness and nausea. Breathing in high concentrations can cause central nervous system depression, loss of coordination, impaired judgement and unconsciousness.

Ingestion: Harmful if swallowed. Can cause nausea, vomiting, abdominal pain, diarrhea, blurred vision, profuse sweating and muscle twitching. Aspiration into the lung from vomiting may cause chemical pneumonitis or pulmonary oedema.

Eye contact: May cause eye irritation, stinging and reddening of eyes and watering.

Skin contact: May cause skin irritation.

4. FIRST AID MEASURES

General: Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Skin contact: Remove contaminated clothing and wash affected areas with soap and water. Seek medical attention if symptoms persist. Launder clothing before reuse.

Eye contact: In case of eye contact, check for and remove any contact lenses. Immediately irrigate eyes with plenty of running water for at least 20 minutes, keeping eyelids open. Seek immediate medical attention.

Ingestion: If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Can cause chemical pneumonitis and pulmonary oedema. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

Note to physician: No specific antidote. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash point: Not highly flammable.

Flammable limits:



LFL: Not determined.

UFL: Not determined.

Autoignition temperature: Not determined.

Hazardous combustion products: Oxides of carbon and nitrogen.

Extinguishing media: Carbon dioxide, dry chemical, foam and water fog.

Fire-fighting instructions: Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated.

Protective equipment for firefighters: Wear self-contained breathing apparatus and full protective clothing.

6. ACCIDENT RELEASE MEASURES

Personal precautions: Wear full protective clothing.

Environmental precautions: In the event of a major spill, prevent spillage from entering drains or water courses.

Method for cleaning up: Contain spill and absorb with earth, clay, sand, or other absorbent material and collect into labelled containers for disposal. Launder protective clothing before re-use.

7. HANDLING AND STORAGE

Handling: Read the label before use. Avoid contact with eyes and skin. Do not inhale spray mist. Use of safe work practices is recommended. Observe good personal hygiene.

Storage: Store in the closed, original container in a dry, well ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. Keep container tightly sealed and do not store with seed, fertilisers or foodstuffs. Make sure that the product does not come into contact with strong oxidising agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits: No exposure limits have been established for this material.

Engineering controls: Local exhaust ventilation is recommended when vapours and mists can be released in excess of established airborne exposure limits.

Personal protective equipment (PPE):

Respiratory protection: Use an approved full face supplied air respirator if high airborne concentrations of the material are present.

Eye protection: Protective glasses or goggles and face shield.

Skin protection: Elbow-length gloves and protective clothing.



User safety recommendations: Food, beverages and tobacco products should not be stored or consumed where this material is in use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid.

Odor: odorless

pH: 5~9.

Boiling Point: 334 °C.

Melting Point: -61.1°C

Specific density: 1.12.

Solubility: In water 480 mg/L. Miscible in acetone, methanol, toluene and n-hexane.

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions.

Conditions to avoid: Avoid heat, flames and spark. Keep away from sources of ignition.

Hazardous decomposition: Oxides of carbon and nitrogen.

Incompatible materials: Strong acids, bases and oxidising agents.

Hazardous reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

The following information is for the active ingredient, metolachlor.

Acute toxicity:

Oral: LD₅₀ for rats 2780 mg/kg.

Dermal: LD₅₀ for rats >3170 mg/kg.

Inhalation: LC₅₀ for rats >1.75 mg/l air.

Irritant properties:

Skin: Mild skin irritant (rabbits).

Eye: Mild eye irritant (rabbits).

Allergenic and sensitizing effects: May cause skin sensitisation (guinea pigs).

Chronic toxicity/Carcinogenicity: Male and female mice exposed to doses up to 100 mg/kg/day for 18 to 20 months did not develop cancer, nor did male rats at doses of up to 150 mg/kg/day over a 2-year period. Female rats given high doses for 2 years showed a significant increase in new growths, nodules, and lesions in livers at that dose. From these data, it seems unlikely that metolachlor is carcinogenic in humans.



Genetic effects/Mutagenicity: Metolachlor tested negative in two bacterial assays. Also, no mutagenicity effects were noted in a standard mouse test. From this evidence it is unlikely that the compound is mutagenic.

Reproductive effects: In two long-term rat reproduction studies, mating, gestation, lactation, and fertility were not affected at doses of 50 mg/kg/day. However, pup weights and parental food consumption decreased at this low dose.

Teratogenic effects: Metolachlor caused no birth defects in rats at maternal doses of 300 mg/kg/day administered during critical periods of gestation (organogenesis), although some delayed or abnormal development in offspring was seen at this dose. A decrease in food consumption was observed in the mother. In rabbits, a similar pattern of effects (no defects but some delayed development) was also seen at doses of up to 360 mg/kg/day. These data indicate that teratogenic and developmental effects in humans are unlikely at expected levels of exposure.

12. ECOLOGICAL INFORMATION

The following information is for the active ingredient, metolachlor.

Ecotoxicity:

Birds	Acute oral LD ₅₀ : for mallard ducks and bobwhite quail >2150 mg/kg. Dietary LC ₅₀ (5 days): for bobwhite quail and mallard ducks >10 000 mg/kg.
Fish	LC ₅₀ (96 h): for rainbow trout 3.9, carp 4.9, bluegill sunfish 10 mg/l.
Daphnia	EC ₅₀ (48 h): 25 mg/l.
Algae	EC ₅₀ : for <i>Scenedesmus subspicatus</i> 0.1 mg/l.
Bees	LD ₅₀ (oral): >100 µg/bee. LD ₅₀ (contact): >100 µg/bee.
Earthworm	LC ₅₀ (14 days): for earthworms 140 mg/kg soil.

Persistence and degradability: Metolachlor is moderately persistent in the soil environment. Half-lives of 15 to 70 days in different soils have been observed. Very little metolachlor volatilizes from the soil, and photodegradation will be a significant pathway for loss only in the top few inches. Breakdown is mainly dependent upon microbial activity, and thus will be temperature-dependent. Metolachlor is highly persistent in water over a wide range of water acidity. Its half-life at 20 °C is more than 200 days in highly acid waters, and is 97 days in highly basic waters. Metolachlor is also relatively stable in water under natural sunlight.

Bioaccumulative potential: BCF (Bio-concentration factor): 68.8, low potential.

Mobility in soil: Metolachlor is moderately well sorbed by most soils. Soils with higher organic matter



and clay content may sorb it better.

13. DISPOSAL CONSIDERATION

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

14. TRANSPORT INFORMATION

This product is not classified as a dangerous good. No special transport conditions are necessary unless required by other regulations.

UN Number: Not regulated

UN Proper shipping name: Not regulated.

Transport hazard class: NA

Packing group: NA

15. REGULATORY INFORMATION

Hazard symbols:

Xn Harmful

Risk phrases:

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R36 Irritating to eyes.

R65 Harmful: May cause lung damage if swallowed.

Safety phrases:

S2 - Keep out of reach of children.

S24/25 - Avoid contact with skin and eyes.

S36/37 - Wear suitable protective clothing and gloves.

16. OTHER INFORMATION

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.

END OF MSDS