ZHEJIANG RAYFULL CHEMICALS CO., LTD

Tel: +86-577-88905587,88908857
Fax: +86-577-88905567
EMAIL: info@rayfull.com sales@rayfull.com

MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

ZHEJIANG RAYFULL CHEMICALS CO.,LTD

ADD: NO.52 PUCHANG ROAD, PUZHOU INDUSTRIAL PARK, LONGWAN DISTRICT, WENZHOU ZHEJIANG P.R. CHINA

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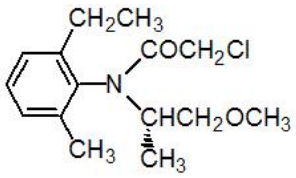
1. Chemical Product Identification

Common Name: S-Metolachlor 96% TC

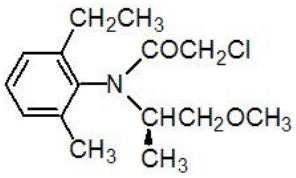
Molecular Formula: $C_{15}H_{22}ClNO_2$

Molecular Weight: 283.79

Structural Formula:



(a*RS*,1*S*)-



(a*RS*,1*R*)-

Chemical Name: mix of: (aRS,1S)-2-chloro-6'-ethyl-N-(2-methoxy-1-methylethyl)acet-o-toluidide and (aRS,1R)-2-chloro-6'-ethyl-N-(2-methoxy-1-methylethyl)acet-o-toluidide

Form: Liquid

Colour: Yellow brown

CAS No.: 87392-12-9

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
S-Metolachlor	87392-12-9	96.0 min
Other ingredients	---	4.0 max

3. Hazards Identification

May be harmful if swallowed.

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May cause damage to organs through prolonged or repeated exposure if swallowed.
Very toxic to aquatic life with long lasting effects.

4. First Aid Measures

Inhalation: Remove source of contamination, or move victim to fresh air. Treat symptomatically and supportively. If breathing is difficult, a qualified person should administer oxygen. Get medical attention immediately if effects persist.

Skin contact: Remove all contaminated clothing, shoes and leather goods. Flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.

Eye contact: Flush contaminated eye with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.

Ingestion: If swallowed, wash mouth with water and contact a Poisons Information Centre, or call a doctor. Do not induce vomiting unless told to do so by the poison control centre or doctor.

5. Fire-Fighting Measures

Suitable extinguishing media:

Small fires: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Large fires: Alcohol-resistant foam or Water spray.

Extinguishing media which shall not be used for safety reasons:

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during fire fighting:

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion.

Exposure to decomposition products may be a hazard to health.

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

6. Accidental Release Measures

In Case of Spill or Leak

Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing

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precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. Handling And Storage

Handling: Avoid inhalation of spray and fumes and contact with skin and eyes. Use with adequate ventilation. Wash hands before eating, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin using nonabrasive soap. Do not apply directly to areas to surfaces where water is present, or to intertidal areas below the mean high water mark.

Storage: Store in its original labelled containers in shaded, well ventilated areas, away from heat, sparks or other sources of ignition. Not to be stored next to food stuffs and water supplies. Keep out of reach of children and animals.

8. Exposure Controls/Personal Protection

Skin contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Eye contact: Where eye contact is likely, use chemical splash goggles.Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. Physical and Chemical Properties

Appearance: Yellow brown liquid

Melting point: -61.1℃

Boiling point: 334℃

Bulk density: 1.21 g/ml (20℃)

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Kow log P = 3.05 (20℃)

Vapour pressure: 3.7 mPa (25℃)

Solubility in water: 480 mg/l (20℃)

Miscible in organic solvents: such as acetone, methanol, toluene etc

10. Stability and Reactivity

Stability: Stable under normal use and storage conditions.

Conditions to avoid: None

Materials to avoid: None

Hazardous decomposition products: May decompose at high temperatures forming toxic gases.

Hazardous polymerization: Will not occur.

11. Toxicological Information

Acute oral toxicity: LD50 for rats 2577 a.i.mg/kg

Acute percutaneous toxicity: LD50 for rats >2000 a.i.mg/kg.

Acute inhalation toxicity: LC50 (rat) >2.91 a.i.mg/L

Skin irritation: Non-irritant to skin (rabbits)

Eye irritation: Non-irritant to eyes (rabbits)

Skin sensitization: May cause a sensitization to Guinea Pig

12. Ecological And Ecotoxicological Information

Effect on birds: low toxicity to birds, acute LD50 for Mallard ducks is >2510 a.i.mg/kg.

Effect on fish: moderate toxicity to fish, acute 96 hour LC50 for Rainbow trout is 1.23 a.i.mg/L.

Effect on aquatic invertebrates: moderate toxicity to aquatic invertebrates, acute 48 hour EC50 for Daphnia magna is 26.0 a.i.mg/L.

Effect on algae: high toxicity to algae, acute 72 hour EC50 for Pseudokirchneriella subcapitata is 0.008 a.i.mg/L.

Effect on honeybees: low-moderate toxicity to honeybees, contact acute 48 hour LD50 is >200 a.i.μg/bee; oral acute 48 hour LD50 is >85 a.i.μg/bee.

Effect on earthworms: moderate toxicity to earthworms, acute 14 day LC50 is 570 a.i.mg/kg.

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13. Disposal Considerations

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport Information

Not applicable.

15. Regulatory Information

Not applicable.

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.