ZHEJIANG RAYFULL CHEMICALS CO., LTD

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MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

ZHEJIANG RAYFULL CHEMICALS CO., LTD

ADD: ROOM 601 3A, DAZIRAN CITY, TANGJIAQIAO ROAD, WENZHOU, ZHEJIANG, CHINA

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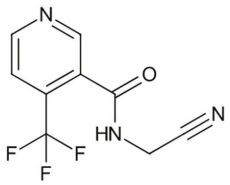
1. Chemical Product Identification

Product Name: Flonicamid 97% TC

Molecular Formula: $C_9H_6F_3N_3O$

Molecular Weight: 229.16 g/mol

Structural Formula:



Chemical Name: N-cyanomethyl-4-(trifluoromethyl)nicotinamide

Form: Powder

Color: Off-white to light yellow

2. Composition / Information on Ingredients

Composition	CAS No.	Content, %
Flonicamid	158062-67-0	97%
Other ingredients	---	3%

3. Hazards Identification

Pictogram:

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Signal Word: Warning

Hazard statement(s):

H302: Harmful if swallowed.

Precautionary statement(s):

P264: Wash {hands} thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P301+312: IF SWALLOWED: call a POISON CENTER/doctor/... IF you feel unwell.

P330: Rinse mouth.

P501: Dispose of contents/container to a approved waste disposal plant.

4. First Aid Measures

Ingestion: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Inhalation: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

Eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Carbon dioxide(CO_2). Foam. Dry chemical. If necessary: Use water spray or fog; do not use straight streams.

Specific Hazards Arising from the Chemical: Combustible material.

Hazardous Combustion Products: Thermal decomposition can lead to release of irritation and toxic gases and vapors.

Protective equipment and precautions for firefighters: Wear self-contained breathing

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apparatus and protective suit. Isolate fire area. Evaluate downwind.

6. Accidental Release Measures

Personal precautions: For personal protection see section 8., Isolate and post spill area, Remove all sources of ignition, Wear suitable protective clothing, gloves and eye/face protection.

Environmental precautions: Keep people and animals away from and upwind of spill/leak, Keep material out of lakes, streams ponds, and sewer drains

Methods for containment: Cover powder spill with plastic sheet or tarp to minimize spreading. Use a wet sweeping compound or water to prevent dust formation. Dike far ahead of spill to collect runoff water. Vacuum, shovel o pump waste into a drum and label contents for disposal.

Methods for cleaning up: Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Dispose of waste as indicated n Section 13.

7. Handling and Storage

Handling: Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal. Reference to other sections.

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition. Store in original container only.

8. Exposure Controls/Personal Protection

Exposure guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Occupational exposure controls

Engineering measures: Apply technical measures to comply with the occupational exposure limits, When working in confined spaces(tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal Protective Equipment

General Information: Clean water should be available for washing in case of eve or skin contamination. Wash hands prior to eating, drinking chewing gum or using tobacco. Shower or bathe a the end of working.

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Respiratory protection: For dust, splash, mist or spray exposures wear a filtering mask.

Eye/face protection: For dust, splash, mist or spray exposure, wear chemical protective goggles or a face-shield.

Skin and body protection: Wear long-sleeved shirt, long pants, socks, shoes, and gloves.

Hand protection Protective: gloves

Hygiene measures: Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at t he end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. Physical and Chemical Properties

Appearance: Off-white to light yellow powder

Odor: Odorless

Density: 1.54 g/mL

Melting Point: 157.5℃

Boiling point: Decomposes before boiling

Partition Coefficient: log P= -0.24 (at pH 7, 20℃)

Vapour pressure: 9.43×10^{-04} mPa (25℃)

Solubility: 5200 mg/L in water (20℃); In organic solvents: 163500 mg/L in Acetone, 34200 mg/L in Ethyl acetate, 4500 mg/L in Dichloromethane, 550 mg/L in Toluene (all at 20℃).

10. Stability and Reactivity

Stability: Stable

Conditions to avoid: Heat, flames and sparks.

Hazardous decomposition products: Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous polymerization: Hazardous polymerization does not occur.

11. Toxicological Information

Acute oral LD_{50} for rats: 884 mg/kg

Acute dermal LD_{50} for rats: >5000 mg/kg

Acute inhalation LC_{50} (4 h) for rats: >4.9 mg/L.

Skin irritation: Non-irritating to skin (rabbits)

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Eye irritation: Non-irritating to eyes (rabbits)

Skin Sensitization: Not a skin sensitiser (guinea pigs)

12. Ecological And Ecotoxicological Information

Effect on birds: Acute LD_{50} for Bobwhite quail is >2000 a.i.mg/kg.

Effect on fish: Acute 96h LC_{50} for Rainbow trout is >100 a.i.mg/L.

Effects on aquatic invertebrates: Acute 48h EC_{50} for Daphnia magna is >100 a.i.mg/L.

Effects on algae: Acute 72 hour for Pseudokirchneriella subcapitata EC_{50} is >100 mg/L.

Effects on bees: Oral acute 48 hour LD_{50} is >100 a.i.μg/bee, contact acute 48 hour LD_{50} is >100 a.i.μg/bee.

Effects on earthworms: Acute 14 day LC_{50} is >1000 a.i.mg/kg.

Effects on soil micro-organisms: Nitrogen mineralisation: No significant adverse effect. Carbon mineralisation: No significant adverse effect.

13. Disposal Considerations

Waste disposal methods: Can be incinerated, when in compliance with local regulations. The appropriate regulatory agencies should be contacted prior to disposal.

Contaminated packaging: Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. Follow provincial instruction for any required additional cleaning of the container prior to its disposal. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

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

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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.