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Material Safety Data Sheet

Fipronil

Section 1: Chemical Product and Company Identification

Molecular formula: C₁₂H₄Cl₂F₆N₄O₅

CAS Nr: 120068-37-3

Molecular weight: 437.14

Synonyms: Fipronil

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	%By Weight
Fipronil	120068-37-3	95

Section 3: Hazards Identification

- * TOXICITY CLASS: WHO (a. i.) II; EPA (formulation) II
- * SIGNAL WORD: WARNING

Section 4: First Aid Measures

- * SKIN CONTACT: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Wash clothing thoroughly before re-use.
- * EYE CONTACT: 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 center or doctor for treatment advice.
- * INGESTION: Call a poison control center or doctor immediately for treatment advice. Rinse mouth. Give water to drink if patient is conscious. DO NOT induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- * INHALED: Move person to fresh air. If person is not breathing, call a poison control center for help, then give artificial respiration, preferably mouth-to-mouth if possible.
- * FURTHER MEDICAL TREATMENT: If poisoning is suspected, do not wait for symptoms to develop. Contact a physician, the nearest hospital, or the nearest Poison Control Center.

Section 5: Fire and Explosion Data

- * SUITABLE EXTINGUISHING MEDIA: Foam, carbon dioxide, dry chemical, water fog. DO NOT use water jet.
- * FIRE FIGHTING PROTECTIVE EQUIPMENT: Use positive pressure self-contained breathing apparatus (SCBA) and full protective clothing if in enclosed space.

Section 6: Accidental Release Measures

- * EMERGENCY PROCEDURES: Wear protective equipment to prevent skin and eyes being affected. Evacuate unprotected and unnecessary personnel from area of spill. If material is leaking from a container, stop the leak only if this can be done safely. Prevent spillage entering drains or watercourse.
- * METHODS FOR CONTAINMENT&CLEANUP: Vermiculite, sand, soil is a suitable absorbent, especially soils high in clay. Soil can be used to form bunds to contain spillage. Contaminated soil should be collected for disposal at a suitable landfill. Contaminated area and tools should be washed down with hypochlorite bleach. Personal protective equipment and clothing should be washed with soapy water.

Section 7: Handling and Storage

* **HANDLING:** Keep out of the reach of children. Keep away from food, drink, and animal feedstuff. Do not get in eyes, on skin, or clothing. Avoid breathing vapor and spray mist. Users should wash hands before eating, drinking, using tobacco, or using the toilet. For handling relative to the end-use of this product, read the product label and wear suitable personal protective equipment when handling and spraying.

* **STORAGE:** Store in original container in a dry, cool, ventilated LOCKED area. DO NOT contaminate water, other pesticides, fertilizer, food or feed in storage. Keep container closed. Keep away from heat, sparks and open flames.

Section 8: Exposure Controls/Personal Protection

PERSONAL PROTECTIVE EQUIPMENT: Use chemical splash goggles. Eye protecting worn must be compatible with respiratory production system employed. Use protective clothing impervious to this material. Selection of specific items such as goggles, face shield, gloves, boots, apron, or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse. Items, which cannot be decontaminated, such as shoes, belts, and watchbands, should be removed, destroyed, and disposed of.

Section 9: Physical and Chemical Properties

* **FORM:** White powder.

* **MELTING POINT:** 195.5-203°C.

* **DENSITY:** N/A.

* **VAPOR PRESSURE:** 3×10^{-7} mPa(25°C)

* **Kow log P:** 4.0 (shake flask method).

* **SOLUBILITY:** In water 1.9 (pH 5), 2.4(pH 9), 1.9(distilled) (all in mg/L, 20°C). In acetone 545.9, dichloromethane 22.3, hexane 0.028, toluene 3.0(all in g/L, 20°C).

* **STABILITY:** Stable in water at pH 5 and 7; slowly hydrolysed at pH 9(DT₅₀ c. 28d). stable to heat. Slowly degrades in sunlight. rapidly photolysed in aqueous solution (DT₅₀ c. 0.33d)

Section 10: Stability and Reactivity Data

* **STABLE:** Stable in water at pH 5 and 7; slowly hydrolysed at pH 9 (DT₅₀ c.28d).stable to heat. Slowly degrades in sunlight.

* **HAZARDOUS POLYMERIZATION:** Polymerization will not occur.

* **HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂), sulphur oxides (SO₂, SO₃), halogenated compounds and hydrogen chloride

Section 11: Toxicological Information

- * ORAL: Acute oral LD₅₀ for rats 97, mice 95 mg/kg.
- * SKIN AND EYE CONTACT: Acute percutaneous LD₅₀ for rats > 2000, rabbits 354mg/kg. Not a skin or eye irritant (OECD criteria). Not a skin sensitizer.
- * INHALATION: LC₅₀ (4h) for rats > 0.682 mg/l.
- * NOEL: (2y) for rats 0.5 mg/kg diet; (18mo) for mice 0.5mg/kg diet; (52w) for dogs 0.2mg/kg b.w. daily (combined sexes).
- * ADI (JMPR): 0.0002 mg/kg b.w. [2000].
- * OTHER: on-mutagenic, non-teratogenic; no adverse effect on reproductive performance.

Section 12: Ecological Information

- * BREAKDOWN OF CHEMICAL IN PLANTS, ANIMALS, SOIL/ENVIRONMENT: When applied as an incorporated soil treatment to cotton, maize, sugar beet or sunflowers, uptake of fipronil into plants in all cases was low (c. 5%) at crop maturity, the major residue components observed in all plants were fipronil, the sulfone, and the amide. Following foliar application to cotton, cabbage, rice and potatoes, at crop maturity, fipronil and the photodegradate were the major residue components. In rats, once absorbed, the distribution and metabolism of fipronil is rapid. Elimination is mainly via the faeces as fipronil and its sulfone.
- * TOXICITY FOR BIRD, FISH, BEE, DAPHNIA
 - Bird: Acute oral LD₅₀ for bobwhite quail 11.3, mallard ducks > 2000, pheasants 31, red-legged partridges 34, house sparrows 1120, pigeons > 2000mg/kg. Dietary LC₅₀ (5d) for bobwhite quail 49, mallard ducks > 5000mg/kg.
 - Fish: Acute LC₅₀ (96 h) for bluegill sunfish 85, rainbow trout 248, European carp 430 µg/l.
 - Bees: Highly toxic to honeybees, both by direct contact and by ingestion. However, no risk to bees when used as a soil or seed treatment.
 - Daphnia: LC₅₀ (48h) 0.19 mg/l; for *D. carinata* (48h) 3.8 mg/l.

Section 13: Disposal Considerations

Large amounts should be incinerated at high temperature in a unit with effluent gas scrubbing. When no incinerator is available, bury in an approved dump, or in an area where there is no risk of contamination of surface or groundwater. Before burying, liberally mix with sodium carbonate crystals, to help neutralize the product, and with soil rich in organic matter. Comply with any local legislation.

Section 14: Transport Information

- * UN No.: UN2588
- * Hazard class: 6.1
- * Packing group: iii
- * Transport measures: take with care. keep locked up. keep away from fire. do not contaminate water, food, or feeds by stage or disposal.

Section 15: Other Regulatory Information

* Risk Phrases:

R21 Harmful in contact with skin. R22 Harmful if swallowed.

R23/25 Toxic by inhalation and if swallowed

* Safety Phrases:

S2 Keep out of reach of children.

S28 after contact with skin, wash immediately with plenty of water.

S 36/37 Wear suitable protective clothing and gloves

S46 If swallowed, seek medical advice immediately and show this container or label.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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