Rotam North America, Inc.

4900 Koger Blvd.
Suite 140
Greensboro, NC 27407
Phone: 336 346 8802
Fax: 786 272 0552

MATERIAL SAFETY DATA SHEET

Section 1. Company Contact and Chemical Product Information

Product Name: Montana® 4F Insecticide
EPA Reg. No.: 83100-21-83979
Product Code: FI-050
Corporate Contact: Tel.: 1-305-599-2221
Emergency number for spills and cleanup: CHEMTREC 1-800-424-9300
Chemical Name of Active Ingredient:
1-(6-chloro-3-pyridylmethyl)-*N*-nitroimidazolidin-2-ylideneamine (IUPAC)
1-[(6-chloro-3-pyridinyl)methyl]-*N*-nitro-2-imidazolidinimine (CAS)
Chemical Formula of Active Ingredient:
$C_9H_{10}ClN_5O_2$
CAS/EPA/EU Registry Number of Active Ingredient:
138261-41-3 (CAS); 582 (CIPAC)

Section 2. Composition/Information on Ingredients

Component	CAS Number	Content (g/L)
Imidacloprid	138261-41-3	480
Inerts	Not available	Balance to 1 liter

Section 3. Hazards Identification

WARNING. May be fatal if swallowed. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves.

Section 4. First Aid Measures

If Swallowed:

- Call a poison control center 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 center or doctor.
- Do not give anything by mouth to an unconscious person.

If On Skin Or Clothing:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15 to 20 minutes.
- Call a poison control center or doctor for treatment advice.

Note To Physician (neonicotinoid): No specific antidote is available. Treat the patient symptomatically.

Section 5. Fire Fighting Measures

Fire and Explosive Hazard: Negligible fire and explosion hazard.

Firefighting Media: Foam, carbon dioxide, dry chemical or water spray to extinguish fire.

Firefighting Precaution: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Avoid breathing dusts, vapors and fumes from burning materials. Control run-off water.

Section 6. Accidental Release Measures

In case materials are released, absorb small spills on spill pillows or other suitable absorbing material (e.g. sand, soil or diatomaceous earth) and place in a sealed container for disposal. Avoid contact of spilled materials and runoff with soil and surface waterways. Use suitable protective equipment (Section 8). Follow all fire prevention procedures (Section 5).

Section 7. Handling and Storage

Handling Precautions: Do not get in eyes, on skin, or on clothes. Avoid breathing vapors or spray mist. Keep good ventilation.

Storage Precautions: Store in the original container and keep closed. Store in cool, dry and well-ventilated place. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.

Section 8. Exposure Controls/Personal Protection

Engineering Controls: Provide local exhaust or process enclosure ventilation system.

Eye/Face: To protect against accidental eye contact, goggles/face-shield should be worn.

Skin Protection: Rubber gloves and clothes should be worn. Wash thoroughly with soap and water after handling.

Respiratory Protection: Ensure good ventilation. Wear adequate mask.

Section 9. Physical and Chemical Properties

Appearance	White Homogeneous and opaque liquid
Odor	Characteristic odor
Water Solubility	Disperse in water

Section 10. Stability and Reactivity

Stability: Stable under normal handling and storage conditions.

Incompatibilities: Avoid mixed with highly reactive chemicals such as strong acid, strong base or strong oxidizing agent.

Hazard Decomposition: Thermal decomposition products contain oxides of carbon, oxides of nitrogen, hydrochloride.

Hazard Polymerization: Will not occur.

Section 11. Toxicological Information

Acute Oral Toxicity: LD50 for rats was between 300 and 1000 mg/kg bw.

Acute Dermal Toxicity: Dermal LD50 was considered higher than 4000 mg/kg bw.

Acute Inhalation Toxicity: LC50 > 5.24 mg/L

Skin Irritation: Non-irritating to skin of rabbits.

Eye Irritation: Non-irritating to eyes of rabbits.

Section 12. Ecological Information

Referenced technical active ingredient ecological information list as below:

Birds — Acute oral LD50 for Japanese quail 31, bobwhite quail 152 mg/kg. Dietary LC50 (5 d) for bobwhite quail 2225, mallard ducks >5000 mg/kg.

Fish — LC50 (96 h) for golden orfe 237, rainbow trout 211 mg/L.

Bee — Harmful to honeybees by direct contact, but no problems expected when not sprayed into flowering crop or when used as a seed treatment.

Environmental Fate:

Animals — After oral administration of methylene-^{14}C- and 4,5-imidazolidine-^{14}C-labelled imidacloprid to rats, the radioactivity was quickly and almost completely absorbed form the gastro-intestinal tract and quickly eliminated (96% within 48 hours, mainly via the urine). Only *c*. 15% was eliminated as unchanged parent compound; the most important metabolic steps were hydroxylation at the imidazolidine ring, hydrolysis to 6-chloronicotinic acid, loss of the nitro group with formation of the guanidine and conjugation of the 6-chloronicotinic acid moiety. Imidacloprid is also quickly largely eliminated from hens and goats.

Plants — Metabolism was investigated on rice (after soil treatment), maize (seed treatment), potatoes (granule or spray application), aubergines (granules) and tomatoes (spray treatment). In all cases, imidacloprid is metabolized by loss of the nitro group, hydroxylation at the imidazolidine ring, hydrolysis to 6-chloronicotinic acid and formation of conjugates; all metabolites contained the 6-chloropyridinylmethylenemoiety.

Soil/Environment:

In laboratory studies, the most important metabolic steps were oxidation at the imidazolidine ring, reduction or loss of the nitro group, hydrolysis to 6-chloronicotinic acid and mineralization; these processes were strongly accelerated by vegetation. Imidacloprid shows a medium adsorption to soil. Column leaching tests (with prior ageing) with a.i. and various formulations showed that imidacloprid and soil metabolites are to be classified as immobile; leaching into deeper soil layers is not to be expected if imidacloprid is used as recommended. Stable to hydrolysis under sterile conditions (under exclusion of light). Environmental DT50 *c*. 4 h (calc., based on tests of direct photolysis in aqueous solutions). Besides sunlight, the microbial activity of a water/sediment system is an important factor for the degradation of imidacloprid.

Section 13. Disposal Considerations

Disposal of product would be treated, stored, transported, and disposed of according to the local regulation. Do not flush to surface water or sanitary sewer system.

Section 14. Transport Information

DOT/IMO/IATA/ADR Classification: Not regulated.

Section 15. Regulatory Information

USEPA Registered Company Address:
Rotam North America, Inc. 4900 Koger Blvd. Suite #140, Greensboro, NC 27407

Product Signal Word: Warning

International Regulation:

Hazard Symbols:

Xn Harmful

Risk Phrases:

R 22 Harmful if swallowed.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 2 Keep out of reach of children
S 22 Do not breathe dust.
S57 Use appropriate containment to avoid environmental contamination.
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

Section 16. Other Information

Disclaimer: The information provided by Rotam North America, Inc. contained herein is given in good faith and correct to the best of our knowledge. However, the information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification.