1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Ranman™ Fungicide

Other means of identification

Product Code(s) 6267-A

Synonyms 4-chloro-2-cyano-N,N-dimethyl-5-p-tolylimidazole-1-sulfonamide;
4-chloro-2-cyano-N,N-dimethyl-5-(4-methylphenyl)-1H-imidazole-1-sulfonamide

Active Ingredient(s) Cyazofamid

Chemical Family Cyanimidazole

Recommended use of the chemical and restrictions on use

Recommended Use: Fungicide

Restrictions on Use: Use as recommended by the label

Manufacturer Address FMC Corporation
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not classified

GHS Label elements, including precautionary statements
EMERGENCY OVERVIEW

The product contains no substances which at their given concentration, are considered to be hazardous to health

Hazard not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
Very toxic to aquatic life with long lasting effects
May be harmful in contact with skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyazofamid technical</td>
<td>120116-88-3</td>
<td>34.5</td>
</tr>
</tbody>
</table>

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

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

Inhalation
Move person to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Ingestion
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.

Most important symptoms and effects, both acute and delayed
None known.

Indication of immediate medical attention and special treatment needed, if necessary
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Foam. Carbon dioxide (CO₂). Dry chemical. Water spray or fog.

Specific Hazards Arising from the Chemical Explosion data
Not sensitive.

Sensitivity to Mechanical Impact
Not sensitive.

Sensitivity to Static Discharge
Not sensitive.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions  Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Other  For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 “Product and Company Identification” above.

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  Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later 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. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

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

Storage  Keep in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Keep out of reach of children and animals Keep/store only in original container

Incompatible products  Iron, Aluminium

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters  This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls  Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Individual protection measures, such as personal protective equipment

Eye/Face Protection  For dust, splash, mist or spray exposure, wear chemical protective goggles.

Skin and Body Protection  Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection  Protective gloves

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

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 the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

General information  If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers

9. PHYSICAL AND CHEMICAL PROPERTIES
Information on basic physical and chemical properties

Appearance Light tan to tan
Physical State Liquid
Color cream to tan
Odor Slight musty
Odor threshold No information available
pH 6.2
Melting point/freezing point 152.7 °C (based on active ingredient)
Boiling Point/Range No information available
Flash point Not applicable
Evaporation Rate No information available
Flammability (solid, gas) No information available
Flammability Limit in Air
   Upper flammability limit: No information available
   Lower flammability limit: No information available
Vapor pressure 0.0000001 torr at 25 °C (based on active ingredient)
Vapor density No information available
Density No information available
Specific gravity 1.154 g/mL
Water solubility 0.107 mg/L at pH 7 @ 20 ºC
Solubility in other solvents No information available
Partition coefficient No information available
Autoignition temperature 503 °C / 937 °F (using 100 uL)
Decomposition temperature No information available
Viscosity, kinematic No information available
Viscosity, dynamic No information available
Explosive properties No information available
Oxidizing properties No information available
Molecular weight No information available
Bulk density No information available

10. STABILITY AND REACTIVITY

Reactivity Not applicable
Chemical Stability Stable under recommended storage conditions.
Possibility of Hazardous Reactions None under normal processing.
Hazardous polymerization Hazardous polymerization does not occur.
Conditions to avoid None known
Incompatible materials Iron, Aluminium.
Hazardous Decomposition Products Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral > 5,000 mg/kg (rat)
LD50 Dermal > 2,000 mg/kg (rat)
LC50 Inhalation > 5.9 mg/L 4 hr (species unknown)

Serious eye damage/eye irritation Non-irritating.
Skin corrosion/irritation Non-irritating during normal use (rabbit).
Sensitization Did not cause sensitization on laboratory animals.

Information on toxicological effects
Symptoms
None known.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity
No known effect based on information supplied.

Mutagenicity
Cyazofamid: Not genotoxic in laboratory studies.

Carcinogenicity
Cyazofamid: No evidence of carcinogenicity from animal studies.

Neurological effects
Cyazofamid: Not neurotoxic.

Reproductive toxicity
Cyazofamid: No toxicity to reproduction in animal studies.

Developmental toxicity
Cyazofamid: Not teratogenic in animal studies.

STOT - single exposure
Not classified.

STOT - repeated exposure
Not classified.

Neurological effects
Cyazofamid: Not neurotoxic.

Aspiration hazard
No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyazofamid</td>
<td>72 h EC50</td>
<td>Algae</td>
<td>0.025</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>48 h EC50</td>
<td>Crustacea</td>
<td>0.19</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish</td>
<td>0.56</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>96 h NOEC</td>
<td>Algae</td>
<td>0.13</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Crustacea</td>
<td>0.11</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Fish</td>
<td>0.13</td>
<td>mg/L</td>
</tr>
</tbody>
</table>

Persistence and degradability

Bioaccumulation
Cyazofamid: The substance does not have a potential for bioconcentration.

Mobility
Cyazofamid: Low mobility; not expected to reach groundwater.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated Packaging
Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. TRANSPORT INFORMATION

DOT
This material is not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.

TDG
Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

<table>
<thead>
<tr>
<th>UN/ID no</th>
<th>Proper Shipping Name</th>
<th>Hazard class</th>
<th>Packing Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3082</td>
<td>Environmentally hazardous substance, liquid, n.o.s.</td>
<td>9</td>
<td>III</td>
<td>UN3082. Environmentally hazardous substance, liquid, n.o.s. (Cyazofamid), 9, PGIII, Marine Pollutant</td>
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</tbody>
</table>
15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>No</td>
</tr>
<tr>
<td>Chronic health hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

FIFRA Information
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION
Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes, or clothing. This product is toxic to aquatic organisms.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated by state right-to-know regulations
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical hazard</th>
<th>Personal Protection</th>
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<tbody>
<tr>
<td></td>
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<td>0</td>
<td>0</td>
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</table>

Revision date: 2015-02-23
Revision note (M)SDS sections updated

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End of Safety Data Sheet