**1. IDENTIFICATION**

**Product name:** Ironclad™

**Chemical name of active ingredient:**
- Nicosulfuron: \(2-[(4,6\text{-dimethoxypyrimidin-2-yl})\text{aminocarbonyl}]\text{aminosulfonyl}]\text{-N,N-dimethyl-3-pyridinecarboxamide}\)
- Rimsulfuron: \(\text{N-}[(4,6\text{-dimethoxypyrimidin-2-yl})\text{aminocarbonyl}]-3\text{-ethylsulfonyl}]\text{-2-pyridinesulfonamide}\)

**Manufacturer/Registrant:** Makhteshim Agan of North America, Inc.
4515 Falls of Neuse Road, Suite 300
Raleigh, NC 27609
Phone: 919-256-9300

For fire, spill, and/or leak emergencies, contact Infotrac:
Phone: 1-800-535-5053

For medical emergencies and health and safety inquiries, contact Prosar:
Phone: 1-877-250-9291

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>CAS NO.</th>
<th>%</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>OTHER</th>
<th>NTP/IARC/OSHA (Carcinogen)</th>
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</thead>
<tbody>
<tr>
<td>Nicosulfuron</td>
<td>111991-09-4</td>
<td>50</td>
<td>NE</td>
<td>NE</td>
<td>NA</td>
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<tr>
<td>Rimsulfuron</td>
<td>122931-48-0</td>
<td>25</td>
<td>NE</td>
<td>NE</td>
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</tbody>
</table>

**3. HAZARDS IDENTIFICATIONS**

**PHYSICAL PROPERTIES:**
- Appearance: Beige cylindrical granules
- Odor: faint characteristic odor

**EMERGENCY OVERVIEW:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Harmful if absorbed through the skin. Avoid contact with skin.

**PRIMARY ROUTES OF EXPOSURE:** Eye and skin contact and inhalation.

**POTENTIAL HEALTH EFFECTS:**
- Based on data from animal tests, Ironclad may cause skin irritation with itching, burning, redness, swelling or rash.
- Based on data from animal tests, Ironclad may cause eye irritation with tearing, pain or blurred vision.
- Based on data from components, ingestion of high doses of Ironclad may cause reduced white blood cell production; non-specific effects such as nausea and weakness; or abnormal liver function as detected by laboratory tests.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Sulfur oxides, nitrogen oxides (NO, NO\(_2\)), carbon oxides (CO, CO\(_2\)).

**4. FIRST AID MEASURES**

**FIRST AID**

**IF IN 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 center or doctor for treatment advice.

**IF ON SKIN OR CLOTHING:**
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.
IF SWALLOWED:
- Immediately call a poison control center or doctor.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give any liquid to the person.
- Do not give anything by mouth to an unconscious or convulsing person.

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

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact PROSAR at 1-877-250-9291 for emergency medical treatment information.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable
FLAMMABLE LIMITS: LFL/UFL: Not applicable

EXTINGUISHING MEDIA: Water, foam, CO₂, dry chemical.

HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur oxides, nitrogen oxides (NO, NO₂), carbon oxides (CO, CO₂).

SPECIAL FIRE-FIGHTING PROCEDURES: Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Wear suitable protective clothing, gloves and eye/face protection.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, waterways, or low areas. Prevent groundwater contamination. Follow applicable Federal, State/Provincial and Local laws/regulations.

SPILL CLEAN UP: Shovel or sweep up. Avoid causing dust.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Wash clothing after use. Avoid breathing dust. Avoid breathing mist. Ventilation required.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store product in original container only. Store in cool, dry place.

STORAGE TEMPERATURE (MIN/MAX): Normal ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

EYE PROTECTION: Safety goggles with side shields or goggles

SKIN PROTECTION: Long sleeved shirt, long pants, shoes plus socks and apron to prevent exposure.

HAND PROTECTION: Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinylchloride.

RESPIRATOR REQUIREMENTS: When needed, based on the conditions of use, wear a NIOSH-approved respirator with purifying cartridge.

ADDITIONAL PROTECTIVE MEASURES: Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them. Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

EXPOSURE GUIDELINES: Refer to Section 2.
ENGINEERING CONTROLS: Use only with adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Beige cylindrical granules
ODOR: Faint characteristic odor
pH: 4.10
BULK DENSITY: 0.503g/mL (Pour); 0.517g/mL (Tap)

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal use and storage conditions.
MATERIALS TO AVOID: None known.
HAZARDOUS POLYMERIZATION: Not applicable.
INSTABILITY CONDITIONS: None known.
HAZARDOUS DECOMPOSITION PRODUCTS: Sulfur oxides, nitrogen oxides (NO, NO$_2$), carbon oxides (CO, CO$_2$).

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES:
(Based on a formulation containing 37.5% Nicolsulfuron/37.5% Rimsulfuron)
- Acute Oral LD$_{50}$ (Rat): > 5,000 mg/kg
- Acute Dermal LD$_{50}$ (Rat): > 2,000 mg/kg
- Acute Inhalation LC$_{50}$ (Rat): > 5.6 mg/L (4 hr.)
- Eye Irritation: Moderately irritating
- Skin Irritation: Slightly irritating
- Dermal Sensitization: Not a skin sensitizer.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS: Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment rinse water. Do not apply where/when conditions could favor runoff. Do not apply if a severe storm is expected within 24 hours.

ECOTOXICOLOGICAL INFORMATION:

Aquatic Toxicity: (Nicolsulfuron)
- 96 hour Bluegill sunfish LC$_{50}$: > 1,000 mg/L
- 96 hour Rainbow trout LC$_{50}$: > 1,000 mg/L
- 48 hour Daphnia magna EC$_{50}$: > 1,000 mg/L

Avian Toxicity: (Nicolsulfuron)
- Acute oral Bobwhite quail LD$_{50}$: > 2,250 mg/kg
- Acute Dietary Bobwhite quail LC$_{50}$: > 5,620 ppm
- Acute Dietary Mallard duck LC$_{50}$: > 5,620 ppm

Aquatic Toxicity: (Rimsulfuron)
- 96 hour Bluegill sunfish LC$_{50}$: > 390 mg/L
- 96 hour Rainbow trout LC$_{50}$: > 390 mg/L
- 96 hour Carp LC$_{50}$: > 900 mg/L

Avian Toxicity: (Rimsulfuron)
- Acute oral Bobwhite quail LD$_{50}$: > 2,250 mg/kg
- Acute oral Mallard duck LD$_{50}$: > 2,000 mg/kg
- Acute Dietary Bobwhite quail LC$_{50}$: > 5,620 ppm
13. DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by storage and disposal.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Dispose of product containers, waste containers, and residues according to label instructions and local, state, and federal health and environmental regulations.

14. TRANSPORT INFORMATION

DOT CLASSIFICATION: Not regulated.

INTERNATIONAL TRANSPORTATION
- IMO (vessel): Not regulated
- IATA (air): Not regulated

15. REGULATORY INFORMATION

CANADIAN REGULATIONS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the CPR.

SARA TITLE III CLASSIFICATION:
- Section 302: Not applicable.
- Section 311/312: Acute health hazard (immediate)
- Section 313: Not applicable

CA PROPOSITION 65: Not applicable.

CERCLA RQ: Not applicable.

RCRA CLASSIFICATION: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

TSCA STATUS: The ingredients of this product are listed on the TSCA inventory or are exempt.

16. OTHER INFORMATION

HAZARD RATINGS NFPA HMIS

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<thead>
<tr>
<th>HEALTH</th>
<th>NFPA</th>
<th>HMIS</th>
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MSDS DATE: 12-7-09.

The information herein is given in good faith, but no warrant, express or implied, is made. Consult Makhteshim Agan of North America, Inc. for further information.