1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SQUAREONE™ HERBICIDE

Formula code: 6516-A

Active Ingredient(s): Quinclorac, Carfentrazone-ethyl

Alternate Commercial Name: F7275 Herbicide

Synonyms: 3,7-dichloroquinoline-8-carboxylic acid; 3,7-dichloro-8-quinolinecarboxylic acid; FMC 116426; ethyl (RS)-2-chloro-3-[2-chloro-5- (4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl)-4-fluorophenyl] propionate; ethyl α,2-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzene propanoate

Chemical Family: Quinoline derivative, Triazolinones

Recommended use: Herbicide

Manufacturer: FMC Corporation

Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103

General Information: Phone: (215) 299-6000
E-Mail: msdsinfo@fmc.com

Emergency telephone number:
Medical Emergencies: (800) 331-3148 (U.S.A. & Canada)
+1 (651) 632-6793 (All Other Countries - Collect)
Gamma: +1 800 / 424 9300 (CHEMTREC - U.S.A.)
+1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

Appearance: White to Tan granules

Physical state: solid

Odor: slight sweet

Flammable properties: Finely dispersed particles can form explosive mixtures in air.

Potential health effects

Principle Routes of Exposure: Eye contact, Skin contact, Inhalation, Ingestion.

Acute effects

Eyes: May cause slight irritation.
Skin: May cause moderate skin irritation.
Inhalation: May cause irritation of respiratory tract.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Effects are expected to be similar to those that are seen with acute toxicity.

3. Composition/information on ingredients

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinclorac</td>
<td>84087-01-4</td>
<td>66.05</td>
</tr>
<tr>
<td>Kaolin</td>
<td>1332-58-7</td>
<td>5-10</td>
</tr>
<tr>
<td>Formaldehyde condensate</td>
<td>RR-24503-4</td>
<td>1-5</td>
</tr>
<tr>
<td>Carfentrazone-ethyl</td>
<td>128639-02-1</td>
<td>3.95</td>
</tr>
<tr>
<td>Sodium N-methyl-N-oleyltaurine</td>
<td>137-20-2</td>
<td>1-5</td>
</tr>
<tr>
<td>Amorphous silica gel</td>
<td>7631-86-9</td>
<td>1-5</td>
</tr>
</tbody>
</table>

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 treatment advice.

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 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.

Notes to physician
Treatment is symptomatic and supportive.

5. Fire-fighting measures

Flammable properties
Finely dispersed particles can form explosive mixtures in air.

Sensitivity to Mechanical Impact
not applicable

Sensitivity to Static Discharge
not applicable

Suitable extinguishing media
Carbon dioxide (CO₂), Foam, Dry powder, Water spray.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

NFPA
- Health Hazard: 1
- Flammability: 1
- Stability: 0
- Special Hazards: -

6. Accidental release measures

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

Use a wet sweeping compound or water to prevent dust formation.

Methods for cleaning up

Sweep up and shovel into suitable containers for disposal. 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.

Other

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

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. Store in original container only.

8. Exposure controls/personal protection

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA: 2 mg/m³</td>
<td>TWA: 15 mg/m³ TWA: 5 mg/m³</td>
<td>TWA: 10 mg/m³ TWA: 5 mg/m³</td>
<td>Mexico: TWA 10 mg/m³ Mexico: STEL 20 mg/m³</td>
</tr>
<tr>
<td>Kaolin 1332-58-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amorphous silica gel 7631-86-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IDLH: 3000 mg/m³ TWA: 6 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaolin 1332-58-7</td>
<td>TWA: 2 mg/m³</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 2 mg/m³</td>
<td>TWA: 2 mg/m³</td>
</tr>
</tbody>
</table>

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

If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

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

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to Tan granules</td>
</tr>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Odor</td>
<td>slight sweet</td>
</tr>
<tr>
<td>pH</td>
<td>3.6</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not applicable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flammable properties</td>
<td>Finely dispersed particles can form explosive mixtures in air.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>36.53 lb/gal</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat, flames and sparks</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Carbon oxides, Hydrogen chloride, Hydrogen fluoride, nitrogen oxides (NOx).</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Hazardous polymerization does not occur</td>
</tr>
</tbody>
</table>

11. Toxicological information

**Acute Toxicity**
Signs of toxicity with carfentrazone-ethyl, in laboratory animals, included tremors, abdominal gripping, mucoid anal discharge, bloody oral discharge, hypothermia, squinting eyes, lacrimation, and pink to orange-brown discoloration of urine.

- **Eye contact**: Slightly or non-irritating (rabbit)
- **Skin contact**: Moderately irritating (rabbit)

- **LD50 Dermal**: > 2000 mg/kg (rat)
- **LD50 Oral**: 3129 mg/kg (rat)
- **LC50 Inhalation**: > 2.06 mg/L (4-hr) (rat)

**Sensitization**
Sensitizer

**Chronic Toxicity - Other Ingredient(s)**

**Chronic Toxicity**
Effects are expected to be similar to those that are seen with acute toxicity.
Carcinogenicity

Mutagenicity
Quinclorac, Carfentrazone-ethyl: Not mutagenic.

Reproductive toxicity
Quinclorac: No effects on reproduction in rats; In rabbits effects only at maternally toxic levels.
Carfentrazone-ethyl: No toxicity to reproduction.

Developmental Toxicity
Quinclorac, Carfentrazone-ethyl: Not teratogenic in animal studies.

Target Organ Effects
Quinclorac: Kidney, Liver, Blood. Carfentrazone-ethyl: Red blood cell reduction can occur due to hemoglobin biosynthesis inhibition. Accumulation of precursors of hemoglobin may lead to secondary toxicity to liver and other organs.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>NIOSH - Target Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous silica gel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>eyes,respiratory system</td>
</tr>
</tbody>
</table>

12. Ecological information

Ecotoxicity

Quinclorac (84087-01-4)

<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>Quinclorac</td>
<td>48 h EC50</td>
<td>Daphnia</td>
<td>&gt;100</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>EC50 96h</td>
<td>Algae</td>
<td>&gt;100</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish</td>
<td>&gt;100</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Mallard duck</td>
<td>&gt;5000</td>
<td>ppm</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>Bobwhite quail</td>
<td>&gt;2000</td>
<td>mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>Bee</td>
<td>&gt;100</td>
<td>µg/bee</td>
</tr>
</tbody>
</table>

Carfentrazone-ethyl (128639-02-1)

<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>Carfentrazone-ethyl</td>
<td>120 h LC50</td>
<td>Algae</td>
<td>5.7 - 17</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish</td>
<td>1.6 - 2.0</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>48 h LC50</td>
<td>Daphnia</td>
<td>&gt;9.8</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Bobwhite quail</td>
<td>&gt;2250</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous silica gel</td>
<td>440 mg/L EC50 72 h (Pseudokirchneriella subcapitata)</td>
<td>LC50 5000 mg/L Brachydanio rerio 96 h</td>
<td></td>
<td>EC50 7600 mg/L 48 h</td>
</tr>
</tbody>
</table>

Environmental Fate

Quinclorac (84087-01-4)

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Type of Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinclorac</td>
<td>Half-life in soil</td>
<td>10-40 days</td>
</tr>
<tr>
<td></td>
<td>Stability in water</td>
<td>Stable in water.</td>
</tr>
</tbody>
</table>
CARFENTRAZONE-ETHYL (128639-02-1)

Active Ingredient(s) | Type of Test | Result
--- | --- | ---
Carfentrazone-ethyl | Bioconcentration factor (BCF), Rainbow trout | 159
 | Half-life in soil | <1.5 days
 | log Pow | 3.3
 | Mobility in soil | Not expected to reach groundwater
 | Stability in water | Hydrolysis unstable at pH 5 to 9.

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.

**Packaging Type**
Bulk, Non-Bulk

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

**Proper shipping name**
Environmentally hazardous substance, solid, n.o.s.

**Hazard Class**
9

**UN/ID No**
UN3077

**Packing group**
III

**Marine pollutant**
Carfentrazone-ethyl

**Description**
UN3077, Environmentally hazardous substance, solid, n.o.s. (Carfentrazone-ethyl), 9, PGIII, Marine Pollutant

**ICAO/IATA**

**UN/ID No**
UN3077

**Proper shipping name**
Environmentally hazardous substance, solid, n.o.s.

**Hazard Class**
9

**Packing group**
III

**Marine pollutant**
Carfentrazone-ethyl

**Description**
UN3077, Environmentally hazardous substance, solid, n.o.s. (Carfentrazone-ethyl), 9, PGIII, Marine Pollutant

**IMDG/IMO**

**Proper shipping name**
Environmentally hazardous substance, solid, n.o.s.

**Hazard Class**
9

**UN/ID No**
UN3077

**Packing group**
III

**EmS No.**
F-A, S-F

**Marine pollutant**
Carfentrazone-ethyl

**Description**
UN3077, Environmentally hazardous substance, solid, n.o.s. (Carfentrazone-ethyl), 9, PGIII, Marine Pollutant
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
- Acute Health Hazard: yes
- Chronic Health Hazard: yes
- Fire Hazard: no
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

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.

TSCA Inventory (United States of America)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium N-methyl-N-oleoyltaurine</td>
<td>PAIR: 09/29/2006</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium N-methyl-N-oleoyltaurine</td>
<td>12/28/1984</td>
</tr>
<tr>
<td></td>
<td>09/29/2006</td>
</tr>
</tbody>
</table>

International Regulations

Mexico - Grade
Moderate risk, Grade 2

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogen Status</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaolin</td>
<td></td>
<td>Mexico: TWA 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: STEL 20 mg/m³</td>
</tr>
</tbody>
</table>

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

WHMIS Hazard Class
D2B  Toxic materials

16. Other information

Revision Date: 2012-02-24
Reason for revision: (M)SDS sections updated.