

# MATERIAL SAFETY DATA SHEET

## SHARK™ HERBICIDE



MSDS Ref. No: 128639-02-1-8

Version: Global

Date Approved: 05/16/2001

Revision No: 3

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC directive, 91/155/EEC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** SHARK™ HERBICIDE**PRODUCT CODE:** 6017**ACTIVE INGREDIENT:** Carfentrazone-ethyl**CHEMICAL FAMILY:** Triazolinone**MOLECULAR FORMULA:** C<sub>15</sub>H<sub>14</sub>N<sub>3</sub>O<sub>3</sub>F<sub>3</sub>Cl<sub>2</sub> (carfentrazone-ethyl)

**SYNONYMS:** FMC 116426; F8426; Ethyl 2-chloro-3-[2-chloro-4-fluoro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl]-propanoate; IUPAC: 2-chloro-3-[2-chloro-5-(4-difluoromethyl-3-methyl-5-oxo-4,5-dihydro-[1,2,4] triazol-1-yl)-4-fluoro-phenyl] propionic acid ethyl ester, or Ethyl 2-chloro-3-[2-chloro-5-(4-difluoromethyl-3-methyl-5-oxo-4,5-dihydro-[1,2,4] triazol-1-yl)-4-fluoro-phenyl] propionate

### MANUFACTURER

FMC CORPORATION  
Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103 USA

### Emergency Telephone Numbers:

**Emergency Phone (FMC)** 800-331-3148 (U.S.A. & Canada)

**Emergency Phone (FMC)** 716-735-3765 (Reverse charges)

**CHEMTREC (U.S.):** (800) 424-9300 (U.S.A. & Canada)  
(202) 483-7616 (All other countries)

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS#</u>	<u>Wt. %</u>	<u>PEL/TLV</u>	<u>EC No.</u>	<u>EC Class</u>
Carfentrazone-ethyl	128639-02-1	40	None	None	None
Silica, Amorphous	112926-00-8	<29.1	20 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	None	None
Lignosulfonate acid, sodium salt	8061-51-6	<12	15 mg/m <sup>3</sup> (total) 5 mg/m <sup>3</sup> (resp)	None	None
Alkyl polyglycoside	68515-73-1	<1.2	None	None	None
Silica, quartz	14808-60-7	<0.3	0.1 mg/m <sup>3</sup> (respirable) 0.05 mg/m <sup>3</sup>	None	None

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**IMMEDIATE CONCERNS:**

- Light- to dark-brown solid, with a slight musty odor.
- Slightly combustible. May support combustion at elevated temperatures.
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to algae and toxic to fish and aquatic organisms. Keep out of drains and water courses.
- Moderately irritating to the skin.

**POTENTIAL HEALTH EFFECTS:** Effects from overexposure may result from inhaling or coming into contact with the skin. Symptoms of overexposure include shaking and tearing of the eyes.

**MEDICAL CONDITIONS AGGRAVATED:** None presently known.

---

### 4. FIRST AID MEASURES

**EYES:** Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

**SKIN:** Remove contaminated clothing and thoroughly wash with soap and water. If irritation occurs and persists, contact a medical doctor.

**INGESTION:** Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.

**INHALATION:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

**NOTES TO MEDICAL DOCTOR:** This product has low oral, dermal and inhalation toxicity. It is moderately irritating to the skin and minimally irritating to the eyes. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

---

### 5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Foam, CO2 or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**FIRE / EXPLOSION HAZARDS:** Slightly combustible. This material may support combustion at elevated temperatures.

**FIRE FIGHTING PROCEDURES:** Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride, and hydrogen fluoride.

---

### 6. ACCIDENTAL RELEASE MEASURES

**RELEASE NOTES:** Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of lakes, streams, ponds and sewer drains. Large spills should be covered to prevent dispersal. For dry material, use a wet sweeping compound or water to prevent the formation of dust. If water is used, prevent runoff or dispersion of excess liquid by diking and absorbing with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump all waste material, including absorbent, into a drum and label contents for disposal.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution of caustic or soda ash, and an appropriate alcohol (i.e., methanol, ethanol or isopropanol). Follow this by washing with a strong soap and water solution. Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

---

## 7. HANDLING AND STORAGE

**GENERAL PROCEDURES:** Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

---

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Use local exhaust at all process locations where dust may be emitted. Ventilate all transport vehicles prior to unloading.

### PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** For dust exposure, wear chemical protective goggles or a face shield.

**RESPIRATORY:** For dust exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

**PROTECTIVE CLOTHING:** Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a PVC suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**WORK HYGIENIC PRACTICES:** Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking or using tobacco. Shower at the end of the workday.

### GLOVES:

Wear chemical protective gloves made of materials such as nitrile or neoprene. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**ODOR:** Slightly musty

**APPEARANCE:** Light- to dark-brown solid

**pH:** 7.5 @ 22°C (5.44% in water)

**DENSITY:** 30.56 lb/cu ft @ 22°C (0.49 g/cc)

**MOLECULAR WEIGHT:** 412.2 (carfentrazone-ethyl)

## 10. STABILITY AND REACTIVITY

**CONDITIONS TO AVOID:** Excessive heat and fire.

**STABILITY:** Stable

**POLYMERIZATION:** Will not occur

## 11. TOXICOLOGICAL INFORMATION

**DERMAL LD<sub>50</sub>:** <5000 mg/kg (rat)

**ORAL LD<sub>50</sub>:** >5000 mg/kg (rat)

**INHALATION LC<sub>50</sub>:** >5.72 mg/L/4 hr (rat) (maximum attainable concentration - zero mortality)

**ACUTE EFFECTS FROM OVEREXPOSURE:** This product has low oral, dermal and inhalation toxicity. It is moderately irritating to the skin and minimally irritating to the eyes. Signs of toxicity in laboratory animals included oral discharge, nasal discharge, diarrhea, decreased locomotion and dyspnea.

**CHRONIC EFFECTS FROM OVEREXPOSURE:** No data available for the formulation. In studies with laboratory animals, carfentrazone-ethyl did not cause reproductive toxicity, teratogenicity, or carcinogenicity. An overall absence of genotoxicity has been demonstrated in tests of mutagenicity, DNA damage and chromosome aberrations. Repeated overexposure to crystalline silica for extended periods has caused acute silicosis. IARC has classified crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1). NTP has classified respirable crystalline silica (quartz, cristobalite and tridymite) as "reasonably anticipated to be carcinogenic".

<u>Chemical Name</u>	<u>NTP Status</u>	<u>IARC Status</u>	<u>OSHA Status</u>	<u>Other</u>
Silica, quartz	Anticipated	Listed	Not listed	Not listed (ACGIH)

## 12. ECOLOGICAL INFORMATION

Unless otherwise indicated, the data presented below are based on the active ingredient.

**ENVIRONMENTAL DATA:** Carfentrazone-ethyl is rapidly degraded in soil (DT50 < 1.5 days) through microbial degradation, initially by hydrolysis to F8426-chloropropionic acid, and then through further side-chain degradation to other acids. Based on field studies, carfentrazone-ethyl and its major metabolite, F8426-chloropropionic acid, are confined to the top soil layer, indicating only slight mobility in soil. Carfentrazone-ethyl is hydrolytically unstable in base (half-life of 5.1 hours), with stability increasing with decreasing pH. It is susceptible to photolytic degradation in water, with a half-life of 8.3 days (pH 5). The Log Pow is 3.36 and the measured bioconcentration factor in whole fish is 159, both indicating a low potential for accumulation. Its vapor pressure is 1.19 x 10<sup>-7</sup> torr, indicating that volatility is not a concern with this chemical.

**ECOTOXICOLOGICAL INFORMATION:** Carfentrazone-ethyl is very toxic to algae (EC50: 5.7 to 17 µg/L), and much less toxic to fish (LC50: 1.6 to 2.0 mg/L), and aquatic crustacea (LC50 > 9.8 mg/L). Care should be taken to

avoid contamination of the aquatic environment. In a test with earthworms, carfentrazone-ethyl was shown to cause no effects at concentrations up to 820 mg/kg in soil. Carfentrazone-ethyl shows little toxicity to birds either orally (LD50 > 2,250 mg/kg), or in the diet (LC50 > 5,620 ppm). Similarly, carfentrazone-ethyl has low toxicity to bees (no death at 200 µg/bee).

---

### 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

**EMPTY CONTAINER:** Completely empty package into application equipment. Then dispose of empty package in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

---

### 14. TRANSPORT INFORMATION

#### U.S. DEPARTMENT OF TRANSPORTATION (DOT)

**REPORTABLE QUANTITY (RQ):** None

**U.S. SURFACE FREIGHT CLASS:** Compound, weed killing (herbicide), NOI. NMFC Item 50320.

**MARINE POLLUTANT #1:** Not listed

---

### 15. REGULATORY INFORMATION

#### UNITED STATES

#### SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

**SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):** Not listed

**SECTION 311 HAZARD CATEGORIES (40 CFR 370):** Immediate, Delayed

**SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):** The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs. This product contains the following ingredients with a TPQ of less than 10,000 lbs.: None

**SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):** There are no ingredients in this product which are subject to Section 313 reporting requirements.

#### CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

**CERCLA REGULATORY (40 CFR 302.4):** Not listed

**COMMENTS:** Australian Hazard Code : 3XE

U.S. EPA Signal Word : CAUTION

---

## 16. OTHER INFORMATION

**REVISION SUMMARY** This MSDS replaces Revision #2, dated June 12, 1998. Changes in information are as follows:

Section 1 (Product and Company Identification)

Shark and FMC Logo - FMC Trademarks

© 2001 FMC Corporation. All Rights Reserved