

# MATERIAL SAFETY DATA SHEET

## AIM™ EW HERBICIDE



MSDS Ref. No.: 128639-02-1-14

Date Approved: 01/12/2006

Revision No.: 6

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC directive, 2001/58/EC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>PRODUCT NAME:</b>	AIM™ EW HERBICIDE
<b>PRODUCT CODE:</b>	6164
<b>ACTIVE INGREDIENT(S):</b>	Carfentrazone-ethyl
<b>CHEMICAL FAMILY:</b>	Triazolinone
<b>MOLECULAR FORMULA:</b>	$C_{15}H_{14}N_3O_3F_3Cl_2$ (carfentrazone-ethyl)
<b>SYNONYMS:</b>	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
<b>ALTERNATE PRODUCT NAME(S):</b>	Shark® EW

### MANUFACTURER

FMC CORPORATION  
Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103  
(215) 299 6000 (General Information)

### EMERGENCY TELEPHONE NUMBERS

(800) 331-3148 (FMC - U.S.A. & Canada)  
(716) 735-3765 (FMC - Reverse charges)

For leak, fire, spill, or accident emergencies, call:  
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)  
(703) 527-3887 (CHEMTREC - All Other Countries)

## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

- Off-white liquid with an aromatic solvent 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.

**POTENTIAL HEALTH EFFECTS:** Effects from overexposure may result from swallowing, breathing or coming into contact with the skin or eyes. Symptoms of overexposure include pinpoint pupils, muscular incoordination, labored breathing, tearing, and diarrhea.

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Carfentrazone-ethyl	128639-02-1	21.33	None	R50/53; S60-61
Aromatic Hydrocarbons	64742-95-6	<24	265-199-0	R10-37-51/53-65-66-67; S23-24-43A-57-60-62
Naphthalene	91-20-3	<3.36	202-049-5	R22-40-50/53; S2-36/37- 46-60-61
Propylene Glycol	57-55-6	<4.2	200-338-0	Not classified
Surfactant Blend		<6	None	Not classified
Xylene	1330-20-7	<0.2	215-535-7	R10-20/21-38; S2-25

### 4. FIRST AID MEASURES

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

**SKIN:** Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

**INGESTION:** Do not induce vomiting and do not give liquids of any kind to the person. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

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

**NOTES TO MEDICAL DOCTOR:** This product is expected to have low oral, dermal and inhalation toxicity. It is expected to be mildly irritating to the skin and eyes. It is not expected to cause skin sensitization. This product contains light aromatic hydrocarbons that can produce a severe pneumonitis or fatal pulmonary edema if aspirated during vomiting. Consideration should be given to gastric lavage with

an endotracheal tube in place. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

---

## 5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub> 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.

---

## 6. ACCIDENTAL RELEASE MEASURES

**RELEASE NOTES:** Isolate and post spill area. Remove nearby ignition sources (such as smoking, matches or open flames). Wear protective clothing and respiratory protection as prescribed in Section 8, "Exposure Controls/Personal Protection" below. Keep unprotected persons and animals out of the area.

Keep material out of lakes, streams, ponds and sewer drains. Dike to confine spill and absorb with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump waste 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

**HANDLING AND STORAGE:** 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

### EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Aromatic Hydrocarbons			18 ppm
Naphthalene	10 ppm (TWA) 15 ppm (STEL)	10 ppm (TWA) 50 mg/m <sup>3</sup> (TWA) 15 ppm (STEL)	
Propylene Glycol		10.0 mg/m <sup>3</sup> (WEEL)	
Xylene	150 ppm (STEL)	100 ppm (PEL)	

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

### PERSONAL PROTECTIVE EQUIPMENT

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

**RESPIRATORY:** For splash, mist or spray exposures 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).

**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.

**WORK HYGIENIC PRACTICES:** 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 at the end of the workday.

### COMMENTS:

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated above provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>ODOR:</b>	Aromatic solvent
<b>APPEARANCE:</b>	Off-white liquid
<b>DENSITY / WEIGHT PER VOLUME:</b>	8.80 lb/gal
<b>FLASH POINT:</b>	104 °C (219 °F)
<b>MOLECULAR WEIGHT:</b>	412.2 (carfentrazone-ethyl)
<b>pH:</b>	4.29

---

## 10. STABILITY AND REACTIVITY

<b>CONDITIONS TO AVOID:</b>	Excessive heat and fire.
<b>STABILITY:</b>	Stable
<b>POLYMERIZATION:</b>	Will not occur
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Carbon monoxide, carbon dioxide, nitrogen oxides, hydrogen chloride, and hydrogen fluoride.

---

## 11. TOXICOLOGICAL INFORMATION

**EYE EFFECTS:** Expected to be mildly irritating.

**SKIN EFFECTS:** Expected to be mildly irritating.

**DERMAL LD<sub>50</sub>:** Similar formulation: > 4,000 mg/kg (rat)

**ORAL LD<sub>50</sub>:** Similar formulation: 4,077 mg/kg (rat)

**INHALATION LC<sub>50</sub>:** Similar formulation: > 6.31 mg/l (4 h) (rat) Zero mortality

**SENSITIZATION:** This product is not expected to produce skin sensitization.

**ACUTE EFFECTS FROM OVEREXPOSURE:** This product is expected to have low oral, dermal and inhalation toxicity. It is expected to be mildly irritating to the skin and eyes. Signs of toxicity in laboratory animals included mydriasis, cyanosis, ataxia, dyspnea, lacrimation, and diarrhea. Inhalation of aromatic hydrocarbon vapors may cause dizziness, disturbances in vision, drowsiness, respiratory irritation, and eye, skin and mucous membrane irritation. Vomiting after ingestion of this

product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema. Naphthalene, if ingested, may cause red blood cell hemolysis, especially in individuals with glucose-6-phosphate dehydrogenase deficiency. In humans, ingestion of large amounts of propylene glycol has resulted in reversible central nervous system depression including stupor, rapid breathing and heartbeat, profuse sweating and seizures.

**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. Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage. Naphthalene causes cataracts in humans, rats, rabbits and mice. In 2-year inhalation studies conducted by the National Toxicology Program (NTP), there was no evidence of carcinogenic activity of naphthalene in male mice, there was some evidence of carcinogenic activity in female mice and there was clear evidence of carcinogenic activity in male and female rats. Inhalation studies conducted by the International Agency for Research on Cancer (IARC) have found that there is inadequate evidence of carcinogenicity in humans, therefore, IARC has classified naphthalene as a Group 2B (possibly carcinogenic to humans); however, IARC has found that there is sufficient evidence of carcinogenicity in experimental animals.

### CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Naphthalene	Listed	Listed	Not listed	(ACGIH) Not listed

---

## 12. ECOLOGICAL INFORMATION

No data available for the formulation. Data presented below are based on the active ingredient.

**ENVIRONMENTAL DATA:** Carfentrazone-ethyl is rapidly degraded in soil ( $DT_{50} < 1.5$  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  $1.19 \times 10^{-7}$  torr, indicating that volatility is not a concern with this chemical.

**ECOTOXICOLOGICAL INFORMATION:** Carfentrazone-ethyl is very toxic to algae ( $EC_{50}$ : 5.7 to 17  $\mu\text{g/L}$ ), and much less toxic to fish ( $LC_{50}$ : 1.6 to 2.0 mg/L), and aquatic crustacea ( $LC_{50} > 9.8$  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 ( $LD_{50} > 2,250$  mg/kg), or in the diet ( $LC_{50} > 5,620$  ppm). Similarly, carfentrazone-ethyl has low toxicity to bees (no death at 200  $\mu\text{g/bee}$ ).

---

## 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:** Non-returnable containers that held this material should be cleaned, prior to disposal, by triple rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

---

## 14. TRANSPORT INFORMATION

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

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>U. S. SURFACE FREIGHT CLASS:</b>	Compound, weed killing (herbicide), NOI. NMFC Item 50320.
<b>ADDITIONAL INFORMATION:</b>	This product is not subject to the Hazardous Materials Regulations.

<b>PACKAGING TYPE:</b>	Bulk
<b>ADDITIONAL INFORMATION:</b>	This product is not subject to the Hazardous Materials Regulations.

### INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>ADDITIONAL INFORMATION:</b>	This product is not subject to the IMDG Code.

### ADR - EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD

<b>PACKAGING TYPE:</b>	Non-Bulk
------------------------	----------

<b>PROPER SHIPPING NAME:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>TECHNICAL NAME(S):</b>	Carfentrazone-ethyl
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	9
<b>CLASSIFICATION CODE:</b>	M6
<b>UN/NA NUMBER:</b>	UN3082
<b>PACKING GROUP:</b>	III
<b>HAZARD IDENTIFICATION NUMBER:</b>	90
<b>MARINE POLLUTANT:</b>	Carfentrazone-ethyl
<b>LABEL(S):</b>	9
<b>PLACARD(S):</b>	9
<b>MARKING(S):</b>	UN3082 + Marine Pollutant
<b>ADDITIONAL INFORMATION:</b>	Road or Rail: ADR NOTES: Carfentrazone-ethyl is a Marine Pollutant based on toxicity to algae.

**INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) /  
INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>ADDITIONAL INFORMATION:</b>	This material is not a dangerous good as defined in ICAO and the International Air Transport Association Dangerous Goods Regulations.

**OTHER INFORMATION:**

HARMONIZED SYSTEM  
Import to the U.S.A.: 3808.30.1500  
Export from the U.S.A.: 3808.30.0000

---

## 15. REGULATORY INFORMATION

### UNITED STATES

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

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



**SECTION 311 HAZARD CATEGORIES (40 CFR 370):**

Immediate, Delayed, Fire

**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; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:  
None

**SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):**

This product contains the following ingredients subject to Section 313 reporting requirements:  
Naphthalene

**CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)****CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):**

Listed

<u>Chemical Name</u>	<u>RQ</u>
Naphthalene	100 lb
Xylene	100 lb

**CANADA****WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):**

Chemical Name: Aromatic Hydrocarbons  
Hazard Classification / Division: B3

Chemical Name: Naphthalene  
Hazard Classification / Division: B4, D2A

Chemical Name: Xylene  
Hazard Classification / Division: B2, D2A, D2B

Domestic Substance List: Listed (all components, except for Carfentrazone-ethyl)

**INTERNATIONAL LISTINGS**

Australian Hazard Code: 3XE

**HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:**

Carfentrazone-ethyl, (Index #607-309-00-5):

EC Symbols: N (Dangerous for the environment)

EC Risk Phrases: R50/53 (Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.)

EC Safety Phrases: 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.)

Aromatic Hydrocarbons, (Index #649-356-00-4):

EC Symbols: Xn (Harmful)  
T (Toxic)

EC Risk Phrases: R10 (Flammable)  
R37 (Irritating to respiratory system.)  
R51/53 (Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.)  
R65 (Harmful: may cause lung damage if swallowed.)  
R66 (Repeated exposure may cause skin dryness or cracking.)  
R67 (Vapors may cause drowsiness and dizziness.)

EC Safety Phrases: S23 (Do not breathe gas, fumes, vapor, or spray)  
S24 (Avoid contact with skin.)  
S43A (In case of fire use sand, earth, chemical powder or foam.)  
S57 (Use appropriate container to avoid environmental contamination.)  
S60 (This material and its container must be disposed of as hazardous waste)  
S62 (If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.)

**Notes For Preparation:**

Nota H applies to the product or one or more of its components. Annex 1  
Nota P of Annex 1 applies to the product or one or more of its components.

Naphthalene:

EC Symbols: Xn (Harmful)  
N (Dangerous for the environment)

EC Risk Phrases:	R22	(Harmful if swallowed.)
	R40	(Possible risks of irreversible effects.)
	R50	(Very toxic to aquatic organisms.)
	R53	(May cause long-term adverse effects in the aquatic environment.)
EC Safety Phrases:	S2	(Keep out of the reach of children.)
	S36/37	(Wear suitable protective clothing and gloves.)
	S46	(If swallowed, seek medical advice immediately and show this container or label.)
	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.)

Xylene. (Index #601-022-00-9):

EC Symbols:	Xi	(Irritant)
	Xn	(Harmful)
EC Risk Phrases:	R10	(Flammable)
	R20	(Harmful by inhalation.)
	R21	(Harmful in contact with skin.)
	R38	(Irritating to skin)
EC Safety Phrases:	S2	(Keep out of the reach of children.)
	S25	(Avoid contact with eyes.)

---

## 16. OTHER INFORMATION

**REVISION SUMMARY:**

This MSDS replaces Revision #5, dated November 02, 2004.

Changes in information are as follows:

Section 1 (Product and Company Identification)

Section 15 (Regulatory Information)

Section 16 (Other Information)

Aim, Shark and FMC Logo - FMC Trademarks

© 2006 FMC Corporation. All Rights Reserved.

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable where such product is used in combination with any other materials or in any process. Use of this product is regulated by the U.S. Environmental Protection Agency (EPA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Further, since the conditions and methods of use are beyond the control of FMC Corporation, FMC Corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.