

MATERIAL SAFETY DATA SHEET

AIM™ EC HERBICIDE



MSDS Ref. No: 128639-02-1-13

Version: Global

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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

PRODUCT NAME: AIM™ EC HERBICIDE

PRODUCT CODE: 6165

ACTIVE INGREDIENT: Carfentrazone-ethyl

CHEMICAL FAMILY: Triazolinone

MOLECULAR FORMULA: C₁₅H₁₄N₃O₃F₃Cl₂ (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
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(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	22.37	None	None	None
Aromatic Hydrocarbons	64742-95-6	<60	100 ppm (supplier)	650-001-00-0	R45, 65
Naphthalene	91-20-3	<9.5	10 ppm STEL	202-049-5	R49; R22-50/53
Surfactant Blend	0000-00-0	<6.4	None	None	None

COMMENTS:

Aromatic Hydrocarbons: S45, 53

Naphthalene: S36, 37, 60, 61

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS:

- Brown-orange liquid with an aromatic solvent odor.
- Moderately combustible. May support combustion if heated above the product's flash point (see Section 5, "Fire Fighting Measures" below).
- 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.

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: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. 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 has low oral dermal and inhalation toxicity. It is mildly irritating to the skin and eyes. 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

FLASH POINT AND METHOD: 79.9°C (176°F) (CC)

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

FIRE / EXPLOSION HAZARDS: Moderately combustible. When heated above the flash point, this material releases vapors which, when mixed with air, can burn or be explosive.

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. 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

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 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 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.

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

ODOR: Aromatic solvent

APPEARANCE: Brown-orange liquid

pH: 5.25 (1% aqueous solution)

SPECIFIC GRAVITY: 1.08 @ 20°C (water = 1)

MOLECULAR WEIGHT: 412.2 (carfentrazone-ethyl)

WEIGHT PER VOLUME: 9.0 lb/gal. (1080 g/L)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Excessive heat and fire.

STABILITY: Stable

POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Mildly irritating (rabbit)

SKIN EFFECTS: Mildly irritating (rabbit)

DERMAL LD₅₀: >4000 mg/kg (rat)

ORAL LD₅₀: 4077 mg/kg (rat)

INHALATION LC₅₀: >6.31 mg/L/4 hr (rat) (zero mortality)

ACUTE EFFECTS FROM OVEREXPOSURE: This product has low oral, dermal and inhalation toxicity. It is 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.

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 exposed to 10 or 30 ppm. There was some evidence of carcinogenic activity in female mice, based on increased incidences of pulmonary alveolar / bronchiolar adenomas. In another 2-year inhalation study conducted by the NTP,

there was clear evidence of carcinogenic activity in male and female rats based on increased incidences of respiratory epithelial adenoma and olfactory epithelial neuroblastoma of the nose. The International Agency for Research on Cancer (IARC) has evaluated naphthalene and found that in inhalation studies in rodents, naphthalene caused an increase in the incidence of bronchio-alveolar adenomas in female mice, and of neuroblastomas of the olfactory epithelium and adenomas of the nasal respiratory epithelium in male and female rats; therefore, there is sufficient evidence in experimental animals for the carcinogenicity of naphthalene. There is inadequate evidence in humans for the carcinogenicity of naphthalene; however, IARC has classified naphthalene as a Group 2B (possibly carcinogenic to humans).

<u>Chemical Name</u>	<u>NTP Status</u>	<u>IARC Status</u>	<u>OSHA Status</u>	<u>Other</u>
Naphthalene	Listed	Listed	Not listed	Not listed (ACGIH)

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 (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 1.19×10^{-7} 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: Non-returnable containers which 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

SPECIAL SHIPPING NOTES:

U.S. DEPARTMENT OF TRANSPORTATION (DOT):

Non-bulk Packages:

Notes: Aim EC meets no criterion established for hazardous materials when in non-bulk packages.

Bulk Packages:

Proper Shipping Name: Combustible liquid, n.o.s.

Technical Name(s): naphthalene

Class or Division: Combustible

ID Number: UN 1993

Packing Group: III

Reportable Quantity (RQ): naphthalene

Placard(s): Combustible liquid, 3

Mark(s): 1993

ERG No.: 128

INTERNATIONAL MARITIME DANGEROUS GOODS CODE:

Note: Aim EC meets no criterion established for dangerous goods.

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

UN Number: UN3082

Name and Description: Environmentally hazardous substance, liquid, n.o.s.

Technical Name(s): Carfentrazone-ethyl

Class or Division: 9

Classification Code: M6

Packing Group: III

Marine Pollutant: Carfentrazone-ethyl 22.73%

Label(s): 9

Placard(s): 9

Marks: 3082

Road or Rail: ADR

Notes: Carfentrazone-ethyl meets the criteria of a pollutant to the aquatic environment - toxic to algae.

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

Notes: Aim EC meets no criterion established for dangerous good when shipped by aircraft.

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): 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. 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): Listed.

<u>Chemical Name</u>	<u>Wt.%</u>	<u>RQ</u>
Naphthalene	<9.5	100 lbs.

GENERAL COMMENTS:

Aromatic Hydrocarbons:

EU Symbols: Xn (Harmful)

EU Risk Phrases:

R45 (May cause cancer)

R65 (Harmful, may cause lung damage if swallowed)

EU Safety Phrases:

S45 (In case of accident or if you feel unwell, seek medical advise immediately (show the label where possible))

S53 (Avoid exposure - obtain special instructions before use)

Naphthalene:

EU Symbols: Xn (Harmful); N (Dangerous for the environment)

EU Risk Phrases:

R49 (May cause cancer by inhalation)

R22 (Harmful if swallowed)

R50 (Very toxic to aquatic organisms)

R53 (May cause long-term adverse effects n the aquatic environment)

EU Safety Phrases:

S36 (Wear suitable protective clothing)

S37 (Wear suitable gloves)

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 sheet)

COMMENTS:

Australian Hazard Code : 3XE

U.S. EPA Signal Word : CAUTION

16. OTHER INFORMATION

REVISION SUMMARY

This MSDS replaces Revision #2, dated September 27, 2002. Changes in information are as follows:

Section 2 (Composition / Information on Ingredients)
Section 14 (Transport Information)
Section 15 (Regulatory Information)

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