

# MATERIAL SAFETY DATA SHEET

Cadet™



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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 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Cadet™  
**PRODUCT CODE:** 6504  
**ACTIVE INGREDIENT(S):** Fluthiacet-methyl  
**MOLECULAR FORMULA:** C<sub>15</sub>H<sub>15</sub>ClFN<sup>3</sup>O<sub>3</sub>S<sub>2</sub> (Fluthiacet-methyl)  
**SYNONYMS:** Acetic acid, [[2-chloro-4-fluoro-5-[(tetrahydro-3-oxo-1H,3H-[1,3,4]thiadiazolo[3,4-alpha]pyridazin-1-ylidene)amino]phenyl]thio]-methyl ester  
**ALTERNATE PRODUCT NAME(S):** Appeal EC, Fluthiacet-methyl 10 EC

### MANUFACTURER

FMC CORPORATION  
Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (Email - General Information)

### EMERGENCY TELEPHONE NUMBERS

(800) 331-3148 (Medical - U.S.A. & Canada)  
(651) 632-6793 (Medical - Collect - All Other Countries)  
  
For leak, fire, spill, or accident emergencies, call:  
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)  
(703) 527-3887 (CHEMTREC - Collect - All Other Countries)

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## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

- Gold liquid with an almond odor.
- Possible cancer hazard - may cause cancer based on animal data
- Moderately combustible. May support combustion if heated above the product's flash point (see Section 9, "Physical and Chemical Properties" below).
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Expected to be moderately irritating to the eyes.

**POTENTIAL HEALTH EFFECTS:** Effects from overexposure result from either swallowing, inhaling or coming into contact with the eyes or skin. Expected to be irritating to skin and eyes. Inhalation of vapors at high concentrations may produce headaches, dizziness and affect the nervous system. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. %	EC No.	EC Class
Fluthiacet-methyl	117337-19-6	10.6	None	Xi; R36
Acetophenone	98-86-2		202-708-7	Xn-Xi; R22-36
N-Methyl-2-pyrrolidone	872-50-4		212-828-1	Xi; R36/38
Petroleum solvent			None	Not Classified
Naphthalene	91-20-3		202-049-5	Xn-N; R22-40-50/53
Alkylbenzenesulfonic acid (C10-C16)	68584-22-5		271-528-9	C-Xn; R22-35

### 4. FIRST AID MEASURES

**EYES:** Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist as necessary.

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

**INGESTION:** Rinse mouth with 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 is expected to have low oral, dermal and inhalation toxicity. It is expected to be moderately irritating to the eyes and minimally irritating to the skin. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

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## 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:** 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.

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## 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. 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 contaminated area, scrub area with a solution of detergent (e.g. commercial product such as SuperSoap™, Tide®, Spic and Span®, or other high pH detergent) and water. Let solution sit for 5 minutes. Use a stiff brush to scrub affected area. Repeat if necessary to remove visible staining. Additional decontamination can be made by applying bleach (Clorox® or equivalent) to affected area.

Absorb wash-liquid as noted above, remove visibly contaminated soil and place into recovery / disposal container (plastic, open-top steel drum or equivalent). Place all clean-up material in a container, seal and dispose of in accordance with the method outlined in Section 13 "Disposal Considerations" below.

For further information on spill clean-up, waste disposal, or return of salvaged product, call the FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

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## 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.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Acetophenone	10 ppm (8-hour TWA)		
Naphthalene	10 ppm (TWA) 15 ppm (STEL)	10 ppm (TWA) 50 mg/m <sup>3</sup> (TWA) 15 ppm (STEL)	

**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, rubber or Viton® brand. 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>ODOR:</b>	Almond
<b>APPEARANCE:</b>	Golden liquid
<b>BOILING POINT:</b>	No data available

<b>DENSITY / WEIGHT PER VOLUME:</b>	1.06 g/cm <sup>3</sup>
<b>FLASH POINT:</b>	87.22 °C (189 °F) estimated
<b>MELTING POINT:</b>	Not applicable
<b>pH:</b>	6 - 8 (1% aqueous solution)

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## 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, sulfur oxides, hydrogen chloride, hydrogen fluoride.

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## 11. TOXICOLOGICAL INFORMATION

**EYE EFFECTS:** Moderately irritating (rabbit) (similar formulation)

**SKIN EFFECTS:** Slightly irritating (rabbit) (similar formulation)

**DERMAL LD<sub>50</sub>:** No data available for the product.  
> 2,020 mg/kg (rabbit) Similar formulation

**ORAL LD<sub>50</sub>:** No data available for the product.  
2,537 mg/kg (rat) Similar formulation

**INHALATION LC<sub>50</sub>:** No data available for the product.  
> 2.73 mg/l (4 h) (rat) Similar formulation

**SENSITIZATION:** Non-sensitizing (guinea pig) (similar product)

**ACUTE EFFECTS FROM OVEREXPOSURE:** This product is expected to have low oral, dermal and inhalation toxicity. It is expected to be moderately irritating to the eyes and minimally irritating to the skin. Inhalation of vapors at high concentrations may produce headaches, dizziness and affect the nervous system. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. N-Methyl-2-pyrrolidone, an ingredient in this product, is mildly irritating to the skin; however, it can cause severe dermatitis in humans with prolonged or repeated contact. It is severely irritating to the eyes.

**CHRONIC EFFECTS FROM OVEREXPOSURE:** Fluthiacet-methyl was positive in in-vitro chromosomal aberration tests and negative in in-vivo tests of mutagenicity, chromosomal aberrations, clastogenicity, DNA damage and dominant lethality. High doses of fluthiacet-methyl have been shown to increase the incidence of liver tumors in male mice and pancreatic tumors in male rats. Chronic and subchronic toxicity tests have shown effects on the liver, bone marrow, spleen, pancreas, lymphatic

system, hematopoietic system, uterus and blood at high doses. Animal studies indicate that NMP may be embryotoxic by the oral and intraperitoneal routes. At maternally toxic doses, teratogenic effects were seen in animal tests involving oral, intraperitoneal and dermal exposures. Effects were not seen at levels tolerated by the mother. 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. No relevant data were available on the carcinogenicity of naphthalene to humans; however, IARC has classified naphthalene as a Group 2B (possible human carcinogen).

### CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Naphthalene	2B	Anticipated Carcinogen	Not listed	(ACGIH) Not listed

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL DATA:** No data available for the product.

**ECOTOXICOLOGICAL INFORMATION:** No data available for the product.

## 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.

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## 14. TRANSPORT INFORMATION

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

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>ADDITIONAL INFORMATION:</b>	This material is not a hazardous material as defined by US Department of Transportation at 49 CFR Parts 100 through 185.
<b>PACKAGING TYPE:</b>	Bulk
<b>PROPER SHIPPING NAME:</b>	Combustible liquid, n.o.s.
<b>TECHNICAL NAME(S):</b>	Naphthalene, Acetophenone
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	Combustible
<b>UN/NA NUMBER:</b>	NA 1993
<b>PACKING GROUP:</b>	III
<b>PLACARD(S):</b>	Combustible
<b>MARKING(S):</b>	1993
<b>REPORTABLE QUANTITY (RQ):</b>	Naphthalene - 100 lbs. / 45.4 kg

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## 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, Acetophenone, n-methyl-2-pyrrolidone

**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>
Acetophenone	5,000 lb
Naphthalene	100 lb

**U.S. STATES****California Prop 65:**

WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

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

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 Controlled Products Regulations.

Hazard Classification / Division: B3  
D2A  
D2B

**HAZARD AND RISK PHRASE DESCRIPTIONS:**

EC Symbols:	C	(Corrosive)
	Xn	(Harmful)
	Xi	(Irritant)
	N	(Dangerous for the environment)
EC Risk Phrases:	R22	(Harmful if swallowed.)
	R35	(Causes severe burns.)
	R36	(Irritating to eyes.)
	R36/38	(Irritating to eyes and skin.)
	R40	(Possible risks of irreversible effects.)
	R50/53	(Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.)

**16. OTHER INFORMATION****REVISION SUMMARY:**



New MSDS.

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Viton - E.I. du Pont de Nemours & Co. Trademark

SuperSoap - Trademark of Weba Technologies, Inc.; Tide - Trademark of Proctor and Gamble; Spic and

Span: Trademark of The Spic and Span Company; Clorox - Trademark of The Clorox Company

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