

MATERIAL SAFETY DATA SHEET

COMMAND® 3 ME MICROENCAPSULATED HERBICIDE



MSDS Ref. No: 81777-89-1-6

Version: Global

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Revision No: 5

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. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: COMMAND® 3 ME MICROENCAPSULATED HERBICIDE**PRODUCT CODE:** 1693**ACTIVE INGREDIENT:** Clomazone**CHEMICAL FAMILY:** Herbicide**MOLECULAR FORMULA:** C₁₂H₁₄ClNO₂ (clomazone)**SYNONYMS:** FMC 57020; 2-(2-chlorophenyl)methyl-4,4-dimethyl-3-isoxazolidinone; IUPAC: 2-(2-chlorobenzyl)-4,4-dimethyl-1,2-oxazolidin-3-one; 2-(2-chlorobenzyl)-4,4-dimethylisoxazolidin-3-one**ALTERNATE TRADENAME(S):** Centium™ 36 CS

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 (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>
Clomazone	81777-89-1	31.4	None	None	None
Polymeric Isocyanates	9016-87-9	<5	None	None	None
Calcium Chloride	10043-52-4	<4.5	10 mg/m ³ (supplier)	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: - Brown liquid with a slightly aromatic hydrocarbon 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 to slightly toxic to fish and aquatic organisms. Keep out of drains and water courses.

POTENTIAL HEALTH EFFECTS: Effects from overexposure result from coming into contact with the skin and eyes. Symptoms of overexposure include nasal discharge.

MEDICAL CONDITIONS AGGRAVATED: None presently known.

4. FIRST AID MEASURES

EYES: Flush with plenty of water. Get medical attention if irritation occurs and persists.

SKIN: Wash with plenty of soap and water.

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, contact a medical doctor.

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

5. FIRE FIGHTING MEASURES

FLASH POINT AND METHOD: >94°C (>203°F) (TOC)

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 and/or carbon dioxide, oxides of nitrogen, chlorine and hydrogen chloride.

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 tools and equipment, wash with a 20% solution of potassium hydroxide in methanol. Follow by washing with strong soap and rinsing with water, and add both solutions to the drums of waste already collected.

To clean and neutralize spill areas, spray the area with a 20% solution of potassium hydroxide in methanol. Cover the treated area with plastic and let stand for 24 hours. Remove the covering and place in a drum for later disposal. Wash the area, three times, with a strong soap and rinse with water. If spill occurs on a wooden surface, repeat the entire process again. Absorb, as above, any excess liquid and add to the drums of waste already collected. 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. STORE ABOVE -4°F (-20°C) TO KEEP PRODUCT FROM FREEZING. If frozen, thaw before reuse. For re-circulation directions, refer to the product label under 'Mixing and Handling' instructions, for 'Bulk/Mini-Bulk Containers'. 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 Viton® brand. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Slight aromatic

APPEARANCE: Brown liquid

pH: 6.5 @ 20°C

SOLUBILITY IN WATER: Disperses

MOLECULAR WEIGHT: 239.7 (clomazone)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Excessive heat and fire.

STABILITY: Stable

POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

DERMAL LD₅₀: >5000 mg/kg (rat)

ORAL LD₅₀: >5000 mg/kg (rat)

INHALATION LC₅₀: >5.21 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 non-irritating to the eyes and skin. Signs of toxicity noted in laboratory animals included abdominogenital staining, chromorhinorrhea, chromodacryorrhea, decreased locomotion, dyspnea, diarrhea, and oral and nasal discharge. Calcium chloride may cause moderate to severe eye irritation, which may result in corneal injury. Prolonged or repeated exposure of calcium chloride, on the skin, may cause skin irritation or even burns; the severity of skin irritation may increase on damp or abraded skin.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the formulation. In studies with laboratory animals, clomazone did not cause reproductive toxicity, teratogenicity, or carcinogenicity. Liver enlargement and elevated cholesterol levels are often noted in laboratory animals that have ingested large doses of clomazone during their lifespan. An overall absence of genotoxicity has been demonstrated in tests of mutagenicity, DNA damage and chromosome aberrations.

CARCINOGENICITY:

IARC: Not listed

NTP: Not listed

OSHA: Not listed

OTHER: (ACGIH) Not listed

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Clomazone has a moderate rate of degradation in soil (half-life = 24 days), and is stable to hydrolysis over a wide range of pH. The bioconcentration potential for clomazone is low, with a Log Pow of

2.5, and a measured bioconcentration factor (BCF) of 27 - 40. Field studies showed that clomazone does not significantly leach below 15 cm in soil and is, therefore, not expected to enter groundwater.

ECOTOXICOLOGICAL INFORMATION: Command 3 ME:

Freshwater fish: 96-hour LC50 = 592.7 (Rainbow trout) (low toxicity)
Freshwater invertebrates: 48-hour EC50 = 491.3 mg/L (Daphnia) (low toxicity)
Freshwater aquatic plants: EC50 = 681.47 mg/L (Duckweed) (low toxicity)
Algae, 96-hour EbC50 = 160.85 mg/L (low toxicity)

Clomazone Technical:

Freshwater fish: 96-hour LC50 = 34 (Bluegill sunfish) (slightly toxic)
Estuarine invertebrates: 96-hour LC50 = 8.9 mg/L (Pink shrimp) (moderately toxic)
Estuarine fish: LC50 = 6.3 (Atlantic silverside, moderately toxic) - 41 mg/L (Sheepshead minnow, slightly toxic)
Estuarine invertebrate: LC50 = 0.57 mg/L (Mysid) (highly toxic)
Waterfowl / Upland game birds: Oral LD50 >2510 mg/kg; Dietary LC50 >5620 ppm (low toxicity)

Care should be taken to avoid contamination of the aquatic environment.

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

U.S. DOT (DEPARTMENT OF TRANSPORTATION)

REPORTABLE QUANTITY (RQ): None

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

MARINE POLLUTANT #1: Not listed

OTHER SHIPPING INFORMATION:

NOTE: This product is not a hazardous material nor a dangerous good when transported.

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 #4, dated June 12, 1998. Changes in information are as follows:

Section 12: Ecotoxicological Information

Viton - E.I. du Pont de Nemours and Co. Trademark; Command, Centium and FMC Logo - FMC Trademarks