

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 4/17/00
Product Code: 53500
MSDS: 005775

FRONTROW* HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Frontrow* Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Frontrow is an end-use product containing two individually packaged products, each in its own separate water soluble PVA film.

FirstRate contains:

Cloransulam-methyl	CAS # 147150-35-4	84%
Inert Ingredients, Total Including		16%
Starch	CAS # 009005-25-8	

BF-308 contains:

Flumetsulam	CAS # 098967-40-9	80%
Inert Ingredients, Total, Including:		20%
Starch	CAS # 009005-25-8	

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Brown granules in water soluble packets. If involved in a fire wear positive-pressure, self-contained breathing apparatus and full protective clothing. May cause eye irritation with corneal injury. May cause skin irritation. The LD₅₀ for skin absorption in rabbits is >2000 mg/kg. Oral LD₅₀ for rats is >5000 mg/kg.

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POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause pain and/or slight irritation with corneal injury.

SKIN: Prolonged exposure may cause slight skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD₅₀ for skin absorption in rabbits is expected to be >2000 mg/kg. For the components tested, did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Single dose oral toxicity is extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations. The oral LD₅₀ for rats is expected to be >5000 mg/kg.

INHALATION: Single exposure to dust is not likely to be hazardous. Vapors are unlikely due to physical properties.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, effects have been reported on the following organs: blood, kidney, liver, testes, and thyroid gland.

CANCER INFORMATION: Contains component(s) which did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects or any other fetal effects in lab animals, even at exposure levels having an adverse effect on the mother. No relevant information found on other component(s)

REPRODUCTIVE EFFECTS: Contains component(s) which did not interfere with reproduction in animal studies. No relevant information found on other component(s).

4. FIRST AID:

EYE: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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5. FIRE FIGHTING MEASURES:

FLASH POINT: Not determined (but expected to be greater than 200°F based on components)

FLAMMABLE LIMITS: Not determined.

EXTINGUISHING MEDIA: Use water fog, foam, CO₂, or dry chemical.

FIRE AND EXPLOSION HAZARDS: Fire and explosion potential not determined but expected to be low.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and place into plastic bags for disposal. Report large spills to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Avoid eye contact. Do not take internally. Wash thoroughly after handling and before eating or smoking. Store in original packaging in a dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE: None established.

ENGINEERING CONTROLS: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use chemical goggles.

SKIN PROTECTION: Use gloves impervious to this material when prolonged or frequently repeated contact could occur.

RESPIRATORY PROTECTION: In dusty atmospheres, use a NIOSH approved dust respirator.

APPLICATORS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

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9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: Not applicable

SPECIFIC GRAVITY: Not applicable

VAPOR DENSITY (AIR = 1): Not determined

ODOR: Sweet

SOLUBILITY IN WATER: Disperses in water

VAPOR PRESSURE: Not determined

APPEARANCE: Small brown granules in water soluble packets

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITONS TO AVOID) Should be stable at normal temperatures and storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) PVA packaging is incompatible (will not dissolve) in liquid fertilizer. For main compounds none reasonably foreseeable.

HAZARDOUS DECOMPOSITION PRODUCTS: If product is involved in fire, oxides of nitrogen and halogen derivatives may be formed.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: For the active ingredients, flumetsulam and cloransulam-methyl, in-vitro and animal mutagenicity studies were negative. No relevant information found on other component(s).

12. ECOLOGICAL INFORMATION:

ECOTOXICITY: Slightly toxic to aquatic organisms on an acute basis. Practically non-toxic to birds on an acute basis. Do not allow run-off.

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13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess waste is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
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STARCH	009005-25-8	1.6%
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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
STARCH	009005-25-8	PA1

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Revised Section 15
Reference: DR-0355-5962
Replaces MSDS Dated: 4/30/99
Document Code: D03-035-492
Replaces Document Code: D03-035-491

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.