

Safety Data Sheet



Restore B* Herbicide

*Trademark of Dow AgroSciences LLC

In case of emergency call CANUTEC at 613 996 6666

1. Product Identification:**Product name:** Restore B Herbicide**Product use:** For control of broadleaf weeds in rangeland and pasture areas of Canada.**Effective Date:** January 13, 2011**Supplier:**Dow AgroSciences Canada Inc.
Suite 2100, 450 – 1st Street SW,
Calgary, Alberta,
Canada, T2P 5H1www.dowagro.ca

This product is regulated under authority of the Pest Control Products Act

2. Composition:

Component	CAS Number	% (w/w)
2,4-D dimethylamine (DMA) salt	002008-39-1	72.0 (estimated)
Other ingredients		28.0 (estimated)
Including:		
Water	000732-18-5	
Proprietary sequestrants	not available	

3. Hazard Identification:**Emergency Overview:**

This product is a brown liquid with an amine/phenolic odor. Exposure may cause eye irritation with corneal injury and skin irritation.

Special Health Precautions:

Overexposure to 2,4-D may cause eye irritation, coughing, burning, dizziness or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea.

Potential Health Effects:

Eyes: This product may cause severe eye irritation with corneal injury, which may result in permanent eye damage, even blindness. Chemical burns to the may occur.

Skin contact: Prolonged or repeated contact may cause slight skin irritation with local redness.

Skin absorption: Prolonged or widespread skin contact may result in absorption of potentially harmful amounts.

Ingestion: Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury.

Swallowing larger amounts may cause injury.

Inhalation: A single exposure to vapors is not likely to be hazardous. Prolonged or repeated inhalation may result in irritation to the respiratory tract.

4. First Aid Measures:

Consult a physician in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention at once.

Eyes: Immediately flush eyes with flowing water for 15 minutes. Remove contact lenses after the first 5 minutes and continue washing. Prompt specialist medical consultation is essential.

Skin: Immediately remove and discard contaminated clothing. Wash off with plenty of water.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Inhalation: Remove individual to fresh air if effects occur. Get medical attention if breathing difficulties persist.

Note to physician: Due to irritant properties of this product, swallowing may result in burns/ulceration of mouth, stomach and lower gastro-intestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Endotracheal/esophageal control if lavage is suggested. If burn is present, treat as any thermal burn, after decontamination. There is no specific antidote. Treatment of exposure should

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be directed at the control of symptoms and the clinical condition of the patient.

5. Fire-Fighting Measures:

Flash point: >100°C

Flammable limits: Not applicable

Auto-ignition temperature: Not applicable

Extinguishing media: CO₂, Water fog, foam or dry chemical

Sensitivity to mechanical impact/static discharge: Not available

Unusual fire and explosion hazards:

Ammonia, oxides of nitrogen, chlorine containing compounds and other unknown hazardous materials may be formed under fire conditions. Incomplete combustion may lead to the formation of carbon monoxide and/or asphyxiants. Contain fire-fighting water for future disposal.

Fire-fighting equipment: Wear positive-pressure self-contained breathing apparatus and full turnout gear.

6. Accidental Release Measures:

Soak up spills with absorbent material. Store collected material in secure containers until proper disposal can be arranged. For large spills, Keep spectators away. Isolate the hazard area and deny entry. Stay upwind, out of low lying areas, and ventilate enclosed spaces before entering. Cover the spill with absorbent material and sweep into disposable containers. For impervious surfaces, wash the area with detergent and water and follow with a clean water rinse. If water is used for cleanup, it must be contained and disposed of in accordance with Section 13. Disposal Considerations. 2,4-D is an herbicide that acts on many broadleaf plants. Avoid contaminating soil near desirable vegetation. Do not allow spilled material to contaminate water supplies.

7. Handling and Storage:

Handling: Keep this product out of reach of children. Restore B Herbicide is harmful if swallowed, inhaled or absorbed through the skin. This product may cause severe eye irritation. Avoid contact with eyes, skin or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco or

the toilet. Contaminated clothing should be washed separately from domestic laundry and line-dried. Once used for contaminated clothing, the washing machine should be operated through a complete cycle with hot water and heavy duty detergent only, prior to use for domestic laundry. Discard shoes and other leather items which cannot be decontaminated.

Storage: Do not store this product at temperatures less than 7°C. If product becomes frozen or crystallized, slowly warm it to 27° to 32°C and re-dissolve the crystals before using the product by rolling or shaking the container. Store in a cool dry place. Keep container tightly closed when not in use. Store in a safe manner in original container only. Do not ship or store with food, feed, drugs or clothing.

8. Exposure Controls, Personal Protection and Exposure limits:

Exposure limits:

2,4-D DMA salt: Not available. ACGIH TLV and OSHA PEL for 2,4-D acid is 10 mg/m³.

Water: not available

Engineering controls: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline.

Breathing: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator.

Protective clothing: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Applicators (except those working in enclosed cabs) and other field handlers, including persons repairing or cleaning application equipment, must wear clean body-covering clothing, impervious gloves and boots. As an additional precaution, persons making and/or transferring field dilutions of this product may wear an impervious apron.

Eyes: Use chemical workers' goggles. An eyewash fountain must be available at the work site. Under field conditions at least one liter of clean fresh water in an eyewash bottle must be available.

Other protection: None specified

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9. Physical and Chemical Properties:

Boiling point: >100°C
Vapor pressure: Negligible (as water)
Vapor density: Not applicable
pH: 7.5 to 9.0
Appearance: Brown liquid
Odor: Amine/phenolic odor
Coefficient of water/oil distribution: Not available
Specific gravity: 1.21
Solubility in water: Infinite
Freezing point: 0°C
Odor threshold: Not available
Melting point: Not applicable

10. Stability and Reactivity:

Stability: Avoid excessive heat and cold. This product is stable under normal storage conditions.
Incompatibility: Avoid oxidizing materials and acids.
Hazardous decomposition products: Ammonia, oxides of nitrogen, chlorine containing compounds and other unknown hazardous materials may be formed under fire conditions. Incomplete combustion may lead to the formation of carbon monoxide and/or asphyxiants.
Hazardous polymerization: Not known to occur.

11. Toxicological Information:

Skin absorption: Acute dermal LD50 (rabbit) is >2000 mg/kg.
Ingestion: Acute oral LD50 (rat) 949 mg/kg.
Inhalation: The maximum practically - attainable concentration of this product in the tests (3.5 mg/L for four hours) produced no ill effects in test animals.
Sensitization: Pre-existing skin or respiratory disorders may be aggravated by excessive exposure to this material.
Chronic effects: Extended contact with this product may cause loss of appetite, nausea, vomiting, general tenseness and muscular weakness, and prolonged or repeated exposure may lead to liver or kidney damage or central nervous system symptoms.

Cancer: Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative.

Birth defects: Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. 2,4-D did not cause birth defects in laboratory animals; other effects were seen in the fetus only at doses that caused toxic effects to the mother.

Reproductive effects: Excessive dietary levels of 2,4-D acid have caused decreased weight and survival in offspring in a rat reproduction study.

Mutagenicity: *In vitro* and animal mutagenicity studies were predominantly negative for 2,4-D acid.

12. Ecological Information:

Restore B Herbicide is not toxic to bees and is practically non-toxic to aquatic organisms on an acute basis. Restore B Herbicide is slightly toxic to birds on an acute or dietary basis. Bio-concentration potential for Restore B Herbicide is low. For more complete eco-toxicological information contact Dow AgroSciences at 800 667 3852.

Degradation and Metabolism:

In soil: Microbial degradation involves hydroxylation, decarboxylation, cleavage of the acid side chain and ring opening. Half-life in soil is <7 days. For a review of environmental aspects of 2,4-D see *Environmental Health Criteria 84* (WHO, 1989). Rapid degradation prevents significant downward movement in soil under normal conditions.

In plants: Metabolism involves hydroxylation, decarboxylation, cleavage of the acid side chain and ring opening.

In animals: In rat, following administration, elimination is rapid and mainly as the unchanged substance. Following single doses of up to 10 mg/kg, excretion is almost complete after 24 hours, although, with greater doses, complete elimination takes longer. The maximum concentration in organs is reached after about 12 hours.

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13. Disposal Considerations:

Unused unwanted product: Contact Dow AgroSciences or your provincial regulatory agency for disposal information.

Container disposal: Refer to the product label for instructions regarding cleaning and disposal of empty pesticide containers. If these instructions are missing or not understood, contact Dow AgroSciences at 800 667 3852 or your provincial regulatory agency for direction.

14. Transport Information:

This product is **Not Regulated** under regulations of the Transportation of Dangerous Goods Act.

15. Regulatory Information:

Pest Control Products Act registration number: 28552

For information phone: 800 667 3852

SDS Version : 2 (Nufarm Amine 600 SDS)

SDS Revisions : 1. Product Identification

Replaces: January 23, 2008

16. Other Information:

National Fire Code Classification: Class IIIA

NFPA Ratings: Health: 2, Flammability: 1; Reactivity: 1.

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