



NUFARM AGRICULTURE INC.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUPPLIED BY:
Nufarm Agriculture Inc.
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MANUFACTURED BY:
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PRODUCT: **Nufarm Trillion Turf Herbicide**
PCP NUMBER: 27972
DATE PREPARED: June 29, 2011
PREPARER: Nufarm Agriculture Inc.; Regulatory Affairs & Research Department
CHEMICAL FAMILY/USE: Herbicide
FORMULA: $C_{10}H_{13}Cl_2NO_3 + C_{12}H_{18}ClNO_3 + C_{10}H_{13}Cl_2NO_3$
CHEMICAL SYNONYMS: 2,4-D-dimethylammonium; 2,4-D DMA; 2,4-Dichlorophenoxyacetic acid, dimethylamine salt
+
mecoprop-P-dimethylammonium; MCP-P DMA; CMPP-p DMA; (+)-(R)-2-(4-chloro-2-methylphenoxy)propanoic acid, dimethylamine salt
+
dicamba-dimethylammonium; dicamba DMA; 3,6-dichloro-2-methylbenzoic acid, dimethylamine salt

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	Wt. %	CAS NO.
2,4-D-dimethylammonium	30-32	2008-39-1
Mecoprop-P-dimethylammonium	16-18	66423-09-4
Dicamba-dimethylammonium	3-5	2300-66-5

Other ingredients are non-hazardous and/or proprietary.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: CAUTION POISON. Keep out of reach of children. Avoid contact with skin, eyes or clothing.

EFFECTS OF ACUTE EXPOSURE:

INGESTION: May be harmful if swallowed. May cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms.

SKIN CONTACT: Repeated or prolonged contact may cause irritation. Overexposure by skin absorption may cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms.

INHALATION: Contains materials that may be moderately toxic. Vapours could cause headache, dizziness, respiratory irritation and symptoms similar to those from ingestion.

EYE CONTACT: May cause severe irritation to the eyes.



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MEDICAL CONDITIONS AGGRAVATED: Skin exposure may aggravate preexisting skin conditions. Inhalation of mist may aggravate preexisting respiratory conditions.

SUBCHRONIC (TARGET ORGAN) EFFECTS: Repeated overexposure may cause effects to liver, kidneys, blood chemistry, and gross motor function.

CHRONIC EFFECTS/CARCINOGENICITY: No chronic or carcinogenic effects are anticipated.

REPRODUCTIVE TOXICITY: No adverse reproductive effects are anticipated.

DEVELOPMENTAL TOXICITY: No adverse developmental effects are anticipated.

GENOTOXICITY: No genotoxic effects are anticipated.

PRINCIPLE ROUTES OF EXPOSURE: Eye contact. Skin absorption. Inhalation. Oral ingestion.

TOXICOLOGICALLY SYNERGISTIC MATERIALS: None Known.

OTHER: This product may cause severe irritation to the eyes and irritation to the skin and mucous membranes. Overexposure to this product may cause coughing, burning, dizziness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion, loss of voice or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea. Treat symptomatically.

4. FIRST AID MEASURES

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison center or doctor for further treatment advice.

5. FIRE FIGHTING MEASURES

FLASH POINT:NAp. Aqueous formulation.

CONDITIONS OF FLAMMABILITY:Does not ignite.

FLAMMABLE LIMITS IN AIR - Upper (%):NE

FLAMMABLE LIMITS IN AIR - Lower (%):NE

AUTOIGNITION TEMPERATURE:NE

SENSITIVITY TO MECHANICAL IMPACT (Y/N):None

SENSITIVITY TO STATIC DISCHARGE:None

EXTINGUISHING MEDIA: Water fog, alcohol foam, carbon dioxide, dry chemical.

SPECIAL FIREFIGHTING PROCEDURES: Noxious fumes may be released under fire conditions (HCl, Cl₂, NO_x, CO).

Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled



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container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep in original container. Keep container tightly closed when not in use. Do not store near fertilizer, feeds, foodstuffs, seed or plants. Keep from freezing. Store at temperatures above 0°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

Hazardous Ingredients	TWA*	ACGIH TLV®	STEL	Units
2,4-D-dimethylammonium	10	10	N/E	mg/m ³
Mecoprop-P	10	N/E	20	mg/m ³
Dicamba	N/E	N/E	N/E	mg/m ³

*8-hour TWA unless otherwise noted.

ENGINEERING CONTROLS: Use in a well ventilated area. General ventilation with a good source of make-up air recommended as minimum for indoor situations. Ventilation should be adequate to maintain air concentrations below exposure limits.

RESPIRATORY PROTECTION EQUIPMENT: Use an approved pesticide respirator if ventilation is not adequate or exposure to sprays, mists or vapours is likely.

PROTECTIVE GLOVES: All types of chemical-resistant gloves for handling chemicals are acceptable, provided that they can be cleaned. Rinse gloves before removal.

EYE AND FACE PROTECTION: Goggles or face shield when handling concentrate.

OTHER PROTECTIVE EQUIPMENT: Coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes and protective eye wear (face shield or safety glasses). Rinse gloves before removal.

Coveralls should also be worn when open pouring from containers. When handling more than 1395 L per day, workers must also use a closed system.

VENTILATION: Use only in well ventilated area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

BOILING POINT:>100 C

VAPOR PRESSURE:N/E

VAPOR DENSITY (air = 1):N/E

FREEZING POINT:-5.0 C

MELTING POINT:NAp

PHYSICAL STATE:Liquid

ODOUR:Fishy odour, characteristic organic amine and phenolic.

COLOUR:Clear beige.

ODOR THRESHOLD (ppm):N/E.

EVAPORATION RATE (butyl acetate = 1):N/E.



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SPECIFIC GRAVITY (water = 1): 1.23
DENSITY @ 25°C: N/E
pH: 8-10
SOLUBILITY IN WATER (20°C): Miscible
COEFFICIENT OF WATER/OIL DISTRIBUTION: NA

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions. May boil and then burn under fire conditions.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS: Noxious fumes may be released under fire conditions (HCl, Cl₂, NO_x, CO).

INCOMPATIBILITY (MATERIALS TO AVOID): Avoid contact with strong acidic, basic or oxidizing agents.

CONDITIONS TO AVOID: None known.

11. TOXICOLOGICAL INFORMATION

Data on the major components:

ACUTE ORAL LD₅₀ (mg/kg) - Rat: 2,4-D DMA: 1250 ; Mecoprop-P DMA: 1290 ; Dicamba DMA: >3000

ACUTE DERMAL LD₅₀ (mg/kg) - Rat: 2,4-D DMA: >2000 ; Mecoprop-P DMA: >2000 ; Dicamba DMA: >2000

ACUTE INHALATION LC₅₀ (mg/l) – Rat (4-hour): 2,4-D DMA: >3.5 ; Mecoprop-P DMA: NA ; Dicamba DMA: >2.0

OTHER: This product may cause severe irritation to the eyes and irritation to the skin and mucous membranes.

12. ECOLOGICAL INFORMATION

Data on the major components:

ECOTOXICOLOGICAL INFORMATION:

96-HOUR LC₅₀ (mg/l) – Rainbow Trout: 2,4-D DMA: 100 ; Mecoprop-P acid: 150-220 ; Dicamba acid: 135

48-HOUR EC₅₀ (mg/l) – Daphnia: 2,4-D DMA: 235 ; Mecoprop-P acid: >100 ; Dicamba acid: 120

EC₅₀ (mg/l) – Algae (*Selenastrum*): 2,4-D DMA: 51 ; Mecoprop-P acid: 500; Dicamba acid: >3.7 – 41 (various spp.)

ACUTE ORAL LC₅₀ (mg/kg) – Bobwhite Quail: .. 2,4-D DMA: 500 ; Mecoprop-P acid: 497 ; Dicamba acid: N/E

DIETARY LC₅₀ (ppm) – Bobwhite Quail: 2,4-D DMA: N/E ; Mecoprop-P DMA: >5620 ; Dicamba acid: N/E

DIETARY LC₅₀ (ppm) – Mallard duck: 2,4-D DMA: >5620 ; Mecoprop-P DMA: N/E ; Dicamba acid: >10,000

LD₅₀ (contact) (µg/bee) – Bees: 2,4-D DMA: >100 ; Mecoprop-P acid: >100 ; Dicamba acid: >100

CHEMICAL FATE INFORMATION - Soil: 2,4-D: Microbial degradation, DT₅₀ <7 days. Mecoprop-P: Microbial degradation, DT₅₀ 3 - 13 days. Dicamba: Microbial degradation, DT₅₀ <14 days.

The formulated product is considered to have low to moderate ecological impacts.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.



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Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

14. TRANSPORT INFORMATION

CANADIAN TDG DESCRIPTION (Road & Rail): Not regulated for transport by Road/Rail in Canada. Contact manufacturer for updates to transport information.

15. REGULATORY INFORMATION

WHMIS HAZARD CLASS: D2B. Toxic material.

WHMIS TRADE SECRET: Exempt. (This product is regulated under the Pest Control Products Act - WHMIS exempt.)

CANADIAN INVENTORY: This product is currently exempt from CEPA.

HAZARD RATING SYSTEMS:

HMIS: Not Available

National Fire Protection Association (NFPA®) Hazard Ratings: Not Available

16. OTHER INFORMATION

REVISIONS:

The following has been revised since the last issue of this MSDS: Section 1 revision.

ADDITIONAL INFORMATION:

Abbreviations used throughout the MSDS are:

NA = Not available
NAp = Not applicable
N/E = None Established.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Company references utilized in preparation of the MSDS.

*****END OF MSDS*****