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Important New Safety Data Sheet Information

The new Hazardous Products Regulations were published in Gazette II on February 11, 2015, and include the elimination of the mandatory three year update requirement for Safety Data Sheets (MSDS) for workplace chemicals (WHMIS regulated products). Instead, they require Safety Data Sheets to be accurate at the time of sale and require updating only when the supplier becomes aware of any significant new data. Nufarm Agriculture Inc. is already aligned to manage this new update process through our Safety Data Sheet database. This new requirement also matches the long standing update rule for U.S. Safety Data Sheets.

The significant part of the new regulations is how it affects the Safety Data Sheets we supply for Canadian pesticides regulated under the Pest Control Products Act. Although these Safety Data Sheets are voluntary, industry has always followed the three year expiration date mandated for workplace chemicals. However, now that there is no longer a mandatory three year update requirement, Nufarm Agriculture Inc. has made a decision to update Safety Data Sheets only when there is significant new data to incorporate.

Further information can be found in the Hazardous Products Act at

<http://laws-lois.justice.gc.ca/eng/acts/H-3/> or on the Canadian Centre for Occupational Health and Safety website (http://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/sds.html) which states:

“When is the SDS updated?”

SDSs are required to be accurate at the time of sale. An SDS will be required to be updated when the supplier becomes aware of any "significant new data". The definition of "significant new data" is:

"New data regarding the hazard presented by a hazardous product that changes its classification in a category or subcategory of a hazard class, or result in its classification in another hazard class, or change the ways to protect against the hazard presented by the hazardous product." (Source: Canada Gazette, Part II, Hazardous Products Regulations, Section 5.12 (1))

This definition means that an SDS must be updated when there is new information that changes how the hazardous product is classified, or when there are changes to the way you will handle or store or protect yourself from the hazards of the product.

SDSs will be required to be updated within 90 days of the supplier being aware of the new information. If you purchase a product within this 90 day time period, the supplier must inform you of the significant new data and the date on which it became available in writing.”

For further SDS inquiries, contact the Nufarm Product Information Line at 1-800-868-5444 or email us at communication@ca.nufarm.com.



NUFARM AGRICULTURE INC.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUPPLIED BY:

Nufarm Agriculture Inc.
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Calgary, AB T2H 1H9

Phone Number: (403)-253-8471

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MANUFACTURED BY:

Nufarm Agriculture Inc.
5507 1st Street, SE
Calgary, AB T2H 1H9

Phone Number: (403)-253-8471

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PRODUCT:**2,4-D Amine 500 Liquid Herbicide****PCP NUMBER:**

14725

DATE PREPARED:

November 26, 2013

PREPARER:

Nufarm Agriculture Inc.; Regulatory Affairs & Research Department

CHEMICAL FAMILY/USE:

Herbicide.

FORMULA:

C₁₀H₁₃Cl₂NO₃

CHEMICAL SYNONYMS:

2,4-D DMA; 2,4-Dichlorophenoxyacetic acid, dimethylamine salt.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	Wt. %	CAS NO.
2,4-D DMA salt	47.5-49.5	2008-39-1

Note: The other major ingredient in this product is water.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING-POISON. Keep out of reach of children. Avoid contact with skin, eyes and clothing. Do not inhale fumes. Severely irritating to eyes. May cause skin irritation. Harmful if absorbed through the skin. Harmful if swallowed or inhaled.

EFFECTS OF ACUTE EXPOSURE:

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

SKIN CONTACT: May cause slight transient 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: Causes severe eye irritation including corneal opacity and irreversible eye damage. Causes redness and tearing. Vapours and mist can cause irritation.

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

SUBCHRONIC (TARGET ORGAN) EFFECTS: (An adverse effect with symptoms that develop slowly over a long period of time): Repeated overexposure may cause effects to liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods.

CHRONIC EFFECTS/CARCINOGENICITY: The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. However, more current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic potential.

REPRODUCTIVE TOXICITY: No impairment of reproductive function attributable to 2,4-D has been noted in laboratory animal studies.



NUFARM AGRICULTURE INC.

DEVELOPMENTAL TOXICITY: Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals.

GENOTOXICITY: There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic.

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

TOXICOLOGICALLY SYNERGISTIC MATERIALS: None known.

OTHER: None known.

4 . FIRST AID MEASURES

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 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 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 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 control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

NOTE TO PHYSICIAN: No specific antidote. Treatment based on sound judgment of physician and individual reactions of patient. Overexposure to materials other than this product may have occurred.

5 . FIRE FIGHTING MEASURES

FLASH POINT: > 93.3°C.

CONDITIONS OF FLAMMABILITY: May burn under fire conditions.

FLAMMABLE LIMITS IN AIR - Upper (%): NAp

FLAMMABLE LIMITS IN AIR - Lower (%): NAp

AUTOIGNITION TEMPERATURE: NAp

SENSITIVITY TO MECHANICAL IMPACT (Y/N): NA. No sensitivity expected based on long handling history.

SENSITIVITY TO STATIC DISCHARGE: NA. No sensitivity expected based on long handling history.

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

SPECIAL FIREFIGHTING PROCEDURES: 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 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 from freezing. Store at temperatures above 0°C. If subjected to freezing temperatures, warm to at least 5°C and mix thoroughly. Keep away from food and feed products. Avoid storage in close proximity to insecticides, fungicides, fertilizers, plants and seeds. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.

8 . EXPOSURE CONTROLS/PERSONAL PROTECTION



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EXPOSURE LIMITS:

Hazardous Ingredients	TWA*	ACGIH TLV®	STEL	Units
2,4-D DMA salt	10**	10**	N/E	mg/M ³

*8-hour TWA unless otherwise noted

**based on adopted limit for 2,4-D

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. Gloves are not required for applicator in enclosed tractor or airplane cockpit.

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

OTHER PROTECTIVE EQUIPMENT: Long sleeved shirt, long pants, socks and shoes are minimum work clothing. Coveralls or a chemical-resistant apron should also be worn when open pouring from containers greater than 5L. Use other equipment appropriate to specific situation.

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:NA. Expected to be similar to water: >100°C.

VAPOR PRESSURE:2,4-D negligible. Product expected to be similar to water.

VAPOR DENSITY (air = 1):NA.

FREEZING POINT:NA. Expected to be similar to water: 0°C.

MELTING POINT:NA. 2,4-D technical 135-138°C.

PHYSICAL STATE:Liquid.

ODOUR:Characteristic organic amine and phenolic.

COLOUR:Brown.

ODOR THRESHOLD (ppm):NA

EVAPORATION RATE (butyl acetate = 1):NA

SPECIFIC GRAVITY (water = 1):1.15

DENSITY @ 25°C:1.15

pH:7-9

SOLUBILITY IN WATER (20°C):Soluble.

COEFFICIENT OF WATER/OIL DISTRIBUTION:NA. Product water soluble.

10. STABILITY AND REACTIVITY

STABILITY: Stable.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS: Hydrogen chloride, other chlorine compounds, carbon dioxide, carbon monoxide, oxides of nitrogen and other potentially toxic combustion products may be present.

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

CONDITIONS TO AVOID: None known.

11. TOXICOLOGICAL INFORMATION

Data are from laboratory studies conducted on 2,4-D DMA:

ACUTE ORAL LD₅₀ (mg/kg):949 (Rat)



NUFARM AGRICULTURE INC.

ACUTE DERMAL LD₅₀ (mg/kg):.....> 2000 (Rabbit)
ACUTE INHALATION LC₅₀ (mg/l):> 3.5 mg/l (Rat)
OTHER: Tested as severely irritating to the eye (Rabbit).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Data on 2,4-D DMA:
96-HOUR LC₅₀ (mg/L): 250 (Rainbow Trout)
96-HOUR LC₅₀ (mg/L): 524 (Bluegill)
48-HOUR EC₅₀ (mg/L): 184 (Daphnia)
ORAL LD₅₀ (mg/kg): 500 (Bobwhite Quail)
DIETARY LC₅₀ (ppm): > 5620 (Mallard Duck)

CHEMICAL FATE INFORMATION: In laboratory and field studies, 2,4-D DMA salt rapidly dissociated to parent acid. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks.

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.

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): UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D), Class 9, PG III.

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

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:

Ratings for This Product		Key to Ratings	
2	Health Hazard	0	Minimal
1	Flammability	1	Slight
0	Instability	2	Moderate
		3	Serious
		4	Severe



NUFARM AGRICULTURE INC.

16 . OTHER INFORMATION

REVISIONS:

The following has been revised since the last issue of this MSDS: Sections 1 & 14 revisions.

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*****