



NUFARM AGRICULTURE INC.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUPPLIED BY:

Nufarm Agriculture Inc.
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Calgary, AB. T2H 1H9

MANUFACTURED BY:

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PRODUCT:**TROPOTOX® PLUS 400****PCP NUMBER:**

8211

DATE PREPARED:

April 22, 2014

PREPARER:

Nufarm Agriculture Inc.; Regulatory Affairs & Research Department

CHEMICAL FAMILY/USE:

Herbicide

FORMULA:

MCPB Na: $C_{11}H_{12}ClNaO_3$

MCPA K: $C_9H_8ClKO_3$

CHEMICAL SYNONYMS:

4-(4-chloro-2-methylphenoxy) butanoic acid, sodium salt; MCPB Na
2-Methyl-4-chlorophenoxyacetic acid, potassium salt; MCPA K

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	Wt. %	CAS NO.
MCPB Sodium salt	33-37	6062-26-6
MCPA Potassium salt	2-3	3653-48-3

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

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Severely irritating to eyes. May be harmful if absorbed through the skin. May be harmful if swallowed.

EFFECTS OF ACUTE EXPOSURE:

INGESTION: May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression.

SKIN CONTACT: May cause moderate skin irritation. May be harmful if absorbed through skin.

INHALATION: Contains materials that may be moderately toxic. Vapours could cause headache, nausea, dizziness and respiratory irritation if inhaled.

EYE CONTACT: Causes severe eye irritation. Causes redness and tearing.

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



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time): Repeated overexposure may cause effects to liver, kidneys, blood chemistry, testes and gross motor function. Rare cases of peripheral nerve damage have been reported, but animal studies have failed to substantiate these observations 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. Newer rat and mouse lifetime feeding studies did not show carcinogenic potential for MCPA.

REPRODUCTIVE TOXICITY: Testicular effects have been noted in animal studies on MCPB and MCPA. Lower male fertility has been observed in animal studies on MCPA.

DEVELOPMENTAL TOXICITY: MCPB did not cause developmental toxicity in rabbits at doses toxic to mother animals. MCPA studies in laboratory animals have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals.

GENOTOXICITY: MCPB was not mutagenic in series of well documented studies. For MCPA, there have been some positive and some negative studies, but the weight of evidence is that the substance 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. Employ supportive care. Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

FLASH POINT:No flash point.

CONDITIONS OF FLAMMABILITY:.....None.

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.



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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 away from food and feed products. Keep from freezing. Avoid storage in close proximity to insecticides, fungicides, fertilizers and seeds. Avoid contact with eyes, skin and clothing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

Hazardous Ingredients	TWA	ACGIH TLV	STEL	Units
MCPB Sodium salt	N/E	N/E	N/E	N/Ap
MCPA Potassium salt	N/E	N/E	N/E	N/Ap

ENGINEERING CONTROLS: Use in a well ventilated area.

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 impervious gloves for handling chemicals are acceptable, provided that they can be cleaned.

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

OTHER PROTECTIVE EQUIPMENT: Long sleeved shirt, long pants, socks and shoes suggested as minimum work clothing. 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:MCPB and MCPA 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. MCPB technical 95-100°C. MCPA technical 99-107°C.

PHYSICAL STATE:.....Liquid.

ODOUR:Phenolic.

COLOUR:.....Dark brown.

ODOR THRESHOLD (ppm):.....NA.

EVAPORATION RATE (butyl acetate = 1):.....NA.



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SPECIFIC GRAVITY (water = 1): 1.15
DENSITY @ 25°C: 1.15
pH:.....9.5-10.5
SOLUBILITY IN WATER (20°C):.....MCPB Sodium 200,000 mg/L estimated. Product 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 MCPB technical:

ACUTE ORAL LD₅₀ (mg/kg):4700 (Rat)

ACUTE DERMAL LD₅₀ (mg/kg): > 2000 (Rat)

ACUTE INHALATION LC₅₀ (mg/l): > 1.14 (Rat) 4 hrs.

OTHER: Tested as nonirritating to the skin (Rabbit) and mildly irritating to the eye (Rabbit). Formulated product expected to be more irritating based on data from other sodium and potassium salt formulations of phenoxy herbicides.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Data are from studies conducted on MCPB sodium salt:

96-HOUR LC₅₀ (mg/L): 4.3 (Rainbow Trout)

96-HOUR LC₅₀ (mg/L): 14 (Bluegill)

48-HOUR EC₅₀ (mg/L): 50 (Daphnia)

ORAL LD₅₀ (mg/kg): 282 (Bobwhite Quail)

DIETARY LC₅₀ (ppm): > 5000 (Mallard Duck)

CHEMICAL FATE INFORMATION: Both MCPB sodium and MCPA potassium rapidly dissociate to parent acids in the environment. In soil, they are microbially degraded with typical half-lives of approximately 10 to 14 days.

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.

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.



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14. TRANSPORT INFORMATION

CANADIAN TDG DESCRIPTION (Road & Rail): Not dangerous for transport by road/rail in Canada.

UN/NA NUMBER: None.

PLACARDS: None.

IATA: Not regulated for transportation.

IMO IMDG CODE: None.

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.

NFPA: 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*****