Nufarm

NUFARM AGRICULTURE INC.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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

Phone Number: (403)-253-8471
Fax Number: (403)-253-8478

MANUFACTURED BY:
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PRODUCT: **ASSERT 300 SC Herbicide**
PCP NUMBER: 21032
DATE PREPARED: January 6, 2009
PREPARER: Brent R. McLennan
CHEMICAL FAMILY/USE: Herbicide
FORMULA: $C_{16}H_{20}N_2O_3$
CHEMICAL SYNONYMS: imazamethabenz-methyl, imazamethabenz.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	Wt. %	CAS NO.
imazamethabenz-methyl	28 - 31	81405-85-8
Other ingredients are proprietary.	-	-

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: CAUTION - POISON. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or spray mist. Causes severe eye irritation. May cause skin irritation. May be harmful if swallowed, inhaled or absorbed through the skin.

EFFECTS OF ACUTE EXPOSURE:
INGESTION: May be harmful if swallowed. No specific symptoms known.
SKIN CONTACT: May causes skin irritation.
INHALATION: May cause irritation of the respiratory tract.
EYE CONTACT: Causes severe eye irritation.

MEDICAL CONDITIONS AGGRAVATED: None known.
SUBCHRONIC (TARGET ORGAN) EFFECTS: None known.

CHRONIC EFFECTS/CARCINOGENICITY: None known.
REPRODUCTIVE TOXICITY: None known.
DEVELOPMENTAL TOXICITY: None known.
GENOTOXICTY: None known.
PRINCIPLE ROUTES OF EXPOSURE: Eye contact. Skin absorption. Inhalation. Oral.
TOXICOLOGICALLY SYNERGISTIC MATERIALS: None known.
OTHER: None known.

4. FIRST AID MEASURES

INGESTION: Rush patient to a hospital or contact a Poison Control Centre. Do not induce vomiting.
SKIN: In case of contact, remove contaminated clothing and wash skin thoroughly with soap and water. Throw away clothing and other absorbent material that have been drenched or heavily contaminated with undiluted product. Get medical attention or contact a Poison Control Centre if irritation persists.
INHALATION: If inhaled, remove to fresh air and get medical attention or contact a Poison Control Centre.
EYES: For eye contact, flush with plenty of water for 15 minutes and get immediate medical attention or contact a Poison Control Centre.
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: .....>100°C.
CONDITIONS OF FLAMMABILITY: .....NA.
FLAMMABLE LIMITS IN AIR - Upper (%): .....NA.
FLAMMABLE LIMITS IN AIR - Lower (%): .....NA.
AUTOIGNITION TEMPERATURE: .....NA.
SENSITIVITY TO MECHANICAL IMPACT (Y/N): .....N.
SENSITIVITY TO STATIC DISCHARGE: .....NA.
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 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. Store between 0° - 35°C. Do not freeze. Do not store above 45°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

Hazardous Ingredients	TWA*	ACGIH TLV®	STEL	Units
imazamethabenz-methyl	N/E	N/E	N/E	NAp

*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.
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: Long sleeved shirt, long pants, socks and shoes are minimum work clothing. Coveralls or a chemical-resistant apron, and impermeable boots should also be worn when pouring concentrate. 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.
VAPOR PRESSURE: .....NA.
VAPOR DENSITY (air = 1): .....NA.
FREEZING POINT: .....NA.
MELTING POINT: .....NA.
PHYSICAL STATE: .....Liquid.
ODOUR: .....NA.
COLOUR: .....Cream to white.
ODOR THRESHOLD (ppm): .....NA.
EVAPORATION RATE (butyl acetate = 1): .....NA.
SPECIFIC GRAVITY (water = 1): 1.07
DENSITY @ 25°C: 1.07
pH: .....5.5 – 7.0 (undiluted)
SOLUBILITY IN WATER (20°C): .....Product is dispersible in water.
COEFFICIENT OF WATER/OIL DISTRIBUTION: .....NA.

10. STABILITY AND REACTIVITY

STABILITY: Stable.

HAZARDOUS POLYMERIZATION: Will not occur.
HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS: None known.
INCOMPATIBILITY (MATERIALS TO AVOID): Avoid contact with strong acidic, basic or oxidizing agents.
CONDITIONS TO AVOID: None known.

11. TOXICOLOGICAL INFORMATION

Data on this product or a similar formulation:
ACUTE ORAL LD_{50} (mg/kg): .....>2000 (Rat)
ACUTE DERMAL LD_{50} (mg/kg): .....>4000 (Rat)
ACUTE INHALATION LC_{50} (mg/l): .....6.53 mg/l (Rat, 4-hour exposure)
OTHER: Tested as severely irritating to the eye and non-irritating to skin (Rabbit). Skin sensitizer (Guinea pig).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:
Data on imazamethabenz-methyl technical:
96-HOUR LC_{50} (mg/L): 280 (Rainbow Trout)
96-HOUR LC_{50} (mg/L): > 100 (Bluegill)
48-HOUR EC_{50} (mg/L): > 220 (Daphnia)
DIETARY LC_{50} (ppm): > 5000 (Bobwhite Quail)
DIETARY LC_{50} (ppm): > 5000 (Mallard Duck)

CHEMICAL FATE INFORMATION: Imazamethabenz-methyl is slowly degraded to corresponding free acids in soils, under both aerobic and anaerobic conditions; DT_{50} 25 – 45 d; hydrolysis increases with increasing pH. Subject to photolytic degradation in water and on soil surfaces. DT_{50} of residues in the soil is *c*. 30 – 105 d with no accumulation of acid metabolites. Low leaching potential.

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): Not dangerous for transport by road/rail in Canada. Contact manufacturer for updates to transport information.

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15. REGULATORY INFORMATION

WHMIS HAZARD CLASS: NA.
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: NA.
National Fire Protection Association (NFPA®) Hazard Ratings:

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

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 and public references utilized in preparation of the MSDS.

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