

Product Name: VANTAGE* Plus Max Herbicide Solution

Issue Date: 2009.10.16

Dow AgroSciences Canada Inc. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

VANTAGE* Plus Max Herbicide Solution

COMPANY IDENTIFICATION

Dow AgroSciences Canada Inc.
A Subsidiary of The Dow Chemical Company
Suite 2100, 450 1st Street SW,
Calgary, AB T2P 5H1
Canada

For MSDS updates and Product Information: 800-667-3852

Prepared By: Prepared for use in Canada by EH&S, Product Regulatory
Management Department.
450-652-1029

Revision 2009.10.16

Customer Information Number: 800-667-3852

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. Hazards Identification

Emergency Overview

Color: Yellow

Physical State: Liquid.

Odor: Amine.

Hazards of product:

CAUTION! May cause eye irritation. Isolate area.

Potential Health Effects

Eye Contact: May cause slight eye irritation. Corneal injury is unlikely.

Skin Contact: Brief contact is essentially nonirritating to skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to mist. Prolonged excessive exposure to mist may cause adverse effects.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Birth Defects/Developmental Effects: For similar active ingredient(s). Glyphosate. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Effects: For similar active ingredient(s). Glyphosate. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

3. Composition/information on ingredients

Component	CAS #	Amount W/W
Glyphosate IPA salt	38641-94-0	53.6 %
Balance		46.4 %

Amounts are presented as percentages by weight.

4. First-aid measures

Eye Contact: Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Ingestion: Call a poison control center 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 the poison control center or doctor. Never give anything by mouth to an unconscious person.

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. Fire Fighting Measures

Extinguishing Media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

Hazardous Combustion Products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Phosphorus oxides. Nitrogen oxides. Carbon monoxide. Carbon dioxide.

See Section 9 for related Physical Properties

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Avoid contact with eyes. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor or mist. Use with adequate ventilation.

Storage

Store in a dry place. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Consult local authorities for recommended exposure limits.

None established

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields).

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: In dusty or misty atmospheres, use an approved particulate respirator. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The

following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Physical State	Liquid.
Color	Yellow
Odor	Amine.
Odor Threshold	No test data available
Flash Point - Closed Cup	No test data available
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	No test data available
Boiling Point (760 mmHg)	No test data available.
Vapor Density (air = 1)	No test data available
Specific Gravity (H₂O = 1)	
Liquid Density	1.209 g/ml @ 20 °C <i>Digital density meter</i>
Freezing Point	No test data available
Melting Point	Not applicable
Solubility in water (by weight)	Soluble
pH	4.77 <i>pH Electrode</i>
Decomposition Temperature	No test data available
Evaporation Rate (Butyl Acetate = 1)	No test data available
Kinematic Viscosity	No test data available

10. Stability and Reactivity

Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Nitrogen oxides. Phosphorus oxides. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

LD50, Rat, female > 5,000 mg/kg

Skin Absorption

LD50, Rat, male and female > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, Rat, male and female > 5.23 mg/l

Sensitization**Skin**

Did not cause allergic skin reactions when tested in guinea pigs.

Repeated Dose Toxicity

Based largely or completely on information for similar material(s). Glyphosate. Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Chronic Toxicity and Carcinogenicity

For similar active ingredient(s). Glyphosate. Did not cause cancer in laboratory animals.

Developmental Toxicity

For similar active ingredient(s). Glyphosate. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

For similar active ingredient(s). Glyphosate. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. For the active ingredient(s): Animal genetic toxicity studies were negative.

12. Ecological Information**ENVIRONMENTAL FATE**Data for Component: **Glyphosate IPA salt****Movement & Partitioning**

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is medium (Koc between 150 and 500).

Henry's Law Constant (H): 1.82E-17 atm*m3/mole; 25 °C Calculated**Partition coefficient, n-octanol/water (log Pow):** -3.87 Estimated.**Partition coefficient, soil organic carbon/water (Koc):** 190.9 Estimated.**Bioconcentration Factor (BCF):** 3.16; Estimated.**Persistence and Degradability**

For similar active ingredient(s). Glyphosate. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
9.304E-11 cm ³ /s	0.115 d	Estimated.

ECOTOXICITYData for Component: **Glyphosate IPA salt**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested). For similar active ingredient(s). Glyphosate. Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).

Fish Acute & Prolonged ToxicityLC50, rainbow trout (*Oncorhynchus mykiss*): > 1,000 mg/l**Aquatic Invertebrate Acute Toxicity**LC50, water flea *Daphnia magna*: 930 mg/l**Aquatic Plant Toxicity**EbC50, alga *Scenedesmus* sp., 72 h: 72.9 mg/l**Toxicity to Soil Dwelling Organisms**

LC50, Earthworm Eisenia foetida, adult: > 5,000 mg/kg

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

TDG Small container
NOT REGULATED

TDG Large container
NOT REGULATED

IMDG
NOT REGULATED

ICAO/IATA
NOT REGULATED

15. Regulatory Information

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Hazardous Products Act Information: CPR Compliance

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

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products Act Registration number: 27615

National Fire Code of Canada

Not applicable

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	1	1	0

Recommended Uses and Restrictions

Product use: End use herbicide product

Revision

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DAS Code: GF-1279

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
VOL/VOL	Volume/Volume

Dow AgroSciences Canada Inc. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.