

# Material Safety Data Sheet

## DOW AGROSCIENCES CANADA INC.

**Product name:** VANTAGE™ XRT Herbicide

**Issue Date:** 12/16/2015

**Print Date:** 12/16/2015

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.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

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**Product name:** VANTAGE™ XRT Herbicide

**Recommended use of the chemical and restrictions on use**

**Identified uses:** End use herbicide product

### COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.  
2100 450 1<sup>ST</sup> 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, Hazard Communications.

**Revision Date:** 12/16/2015

**Print Date:** 12/16/2015

**Customer Information Number:**

800-667-3852

[solutions@dow.com](mailto:solutions@dow.com)

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 613-996-6666

**Local Emergency Contact:** 613-996-6666

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## 2. HAZARDS IDENTIFICATION

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### Emergency Overview

#### Appearance

Physical state                      Liquid.

Color                                      Yellow

**Odor**                                      Amine.

<b>Hazard Summary</b>	<b>WARNING!!</b> May cause allergic skin reaction. May cause eye irritation. Isolate area.
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### Potential Health Effects

**Eyes:** May cause moderate eye irritation.  
May cause slight corneal injury.

**Skin:** Brief contact may cause slight skin irritation with local redness.  
Prolonged skin contact is unlikely to result in absorption of harmful amounts.  
Has demonstrated the potential for contact allergy in mice.

**Inhalation:** No adverse effects are anticipated from single exposure to mist.  
Based on the available data, narcotic effects were not observed.

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

**Chronic Exposure:** For similar active ingredient(s).  
Glyphosate.

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.  
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.  
Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Chemical nature:** Plant growth regulator  
This product is a mixture.

Component	CASRN	Weight percent
Glyphosate DMA Salt	34494-04-7	50.2%
Balance	Not available	49.8%

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## 4. FIRST AID MEASURES

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### Description of first aid measures

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**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.

**Skin contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse.

Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

**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. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** No emergency medical treatment necessary.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** 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.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

**Unsuitable extinguishing media:** No data available

**Special hazards arising from the substance or mixture**

**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.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** 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.

**Methods and materials for containment and cleaning up:** 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.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Do not store in: Galvanized containers. Steel.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

Exposure limits are listed below, if they exist.

Consult local authorities for recommended exposure limits.

Exposure limits have not been established for those substances listed in the composition, if any have been disclosed.

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.

### Exposure controls

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use chemical goggles.

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material. 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”). 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.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Liquid.
Color	Yellow
Odor	Amine.
Odor Threshold	No data available
pH	4.59 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	<b>closed cup</b> > 100 °C <i>Setaflash Closed Cup ASTM D3828</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No test data available
Dynamic Viscosity	32.5 mPa.s at 40 °C 62.3 mPa.s at 20 °C
Kinematic Viscosity	No data available

<b>Explosive properties</b>	No
<b>Oxidizing properties</b>	No significant increase (>5C) in temperature.
<b>Liquid Density</b>	1.2114 g/cm <sup>3</sup> at 20 °C <i>Digital density meter</i>
<b>Molecular weight</b>	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Active ingredient decomposes at elevated temperatures.

**Incompatible materials:** Avoid contact with: Acids. Halogens. Oxidizers. Peroxides. Flammable hydrogen may be generated from contact with metals such as: Steel.

**Hazardous decomposition products:** 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. Hydrocarbons. Nitrogen oxides. Phosphorus oxides.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

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

As product:

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

#### Acute dermal toxicity

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

As product:

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

#### Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, narcotic effects were not observed.

As product:

LC50, Rat, male and female, 4 Hour, Aerosol, > 5.63 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause slight corneal injury.

**Sensitization**

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

For similar material(s):

Glyphosate.

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**

For similar active ingredient(s). Glyphosate. Did not cause cancer in laboratory animals. Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

**Teratogenicity**

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.

**Mutagenicity**

This material was not mutagenic in an Ames bacterial assay. Animal genetic toxicity studies were negative.

**Genetic Toxicity in vivo**

Mouse Bone Marrow Micronucleus Test Mouse male Oral gavage negativeResult: negative

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 11 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 17 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 2.1 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Coturnix japonica (Japanese quail), > 2250mg/kg bodyweight.

oral LD50, Apis mellifera (bees), 48 Hour, > 250µg/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 250µg/bee

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 14 d, survival, > 996.6 mg/kg

**Persistence and degradability**

**Glyphosate DMA Salt**

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

**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Glyphosate DMA Salt**

**Bioaccumulation:** For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is slight (Koc between 2000 and 5000). For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in soil**

**Glyphosate DMA Salt**

For similar active ingredient(s).  
Glyphosate.  
Expected to be relatively immobile in soil (Koc > 5000).

**Balance**

No relevant data found.



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### 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** 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.

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### 14. TRANSPORT INFORMATION

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**TDG**

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Glyphosate

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Glyphosate
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.(Glyphosate)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III

**Further information:**

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container

volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## **15. REGULATORY INFORMATION**

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### **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.

### **National Fire Code of Canada**

Not applicable

### **Canadian Domestic Substances List (DSL) (DSL)**

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 29994

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## **16. OTHER INFORMATION**

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### **Hazard Rating System**

#### **NFPA**

<b>Health</b>	<b>Fire</b>	<b>Reactivity</b>
1	1	0

### **Revision**

Identification Number: 101223205 / A215 / Issue Date: 12/16/2015 / Version: 2.0

DAS Code: GF-1280

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

### **Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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.