

<p style="text-align: center;"><b>Monsanto Canada</b> Safety Data Sheet Commercial Product</p>
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## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name**

**Roundup Xtend[™] With VaporGrip[™] Technology Herbicide**

**PCP Reg. No.**

32274

**Product use**

Herbicide

**Chemical name**

Not applicable.

**Synonyms**

None.

**Company**

Monsanto Canada, 900 - One Research Road, Winnipeg, MB, R3T 6E3

**Telephone:** 204-985-1000 or 800-667-4944 **Fax:** 204-488-9599

**E-mail:** safety.datasheet@monsanto.com

**Emergency numbers**

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CANUTEC - Day or Night: 613-996-6666 (collect calls accepted) or MONSANTO: 314-694-4000 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

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## 2. HAZARDS IDENTIFICATION

**Emergency overview**

**Appearance and odour (colour/form/odour):** Dark green / Liquid / Sweet

PRECAUTION!

**Potential health effects**

**Likely routes of exposure**

Skin contact, eye contact, inhalation, ingestion

**Eye contact, short term**

May cause temporary eye irritation.

**Skin contact, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Medical conditions aggravated by exposure**

None.

Refer to section 11 for toxicological and section 12 for environmental information.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Active ingredient**

Diglycolamine salt of dicamba (3,6-dichloro-o-anisic acid); {Diglycolamine salt of dicamba}

N-(phosphonomethyl)glycine, in the form of its ethanolamine salt; {Monoethanolamine salt of glyphosate}

#### Composition

COMPONENT	CAS No.	% by weight (approximate)
Diglycolamine salt of dicamba	104040-79-1	14.5
Monoethanolamine salt of glyphosate	40465-76-7	29.2
Amine Alkoxylate	68478-96-6	<=5
Water and minor formulating ingredients		<=51.3

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

## 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

#### Eye contact

If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. 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

If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

#### Ingestion

Call 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 center or doctor. Do not give anything by mouth to an unconscious person.

## 5. FIRE-FIGHTING MEASURES

#### Flash point

Does not flash.

#### Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

#### Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

#### Hazardous products of combustion

Carbon monoxide (CO), hydrogen chloride (HCl), nitrogen oxides (NO<sub>x</sub>), phosphorus oxides (P<sub>x</sub>O<sub>y</sub>)

#### Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

## 6. ACCIDENTAL RELEASE MEASURES

#### Environmental precautions

Minimise spread.  
Contain spillage with sand bags or other means.  
Keep out of drains, sewers, ditches and water ways.  
Do NOT contaminate water when disposing of rinse waters.

#### Methods for cleaning up

##### SMALL QUANTITIES:

Flush spill area with water.

##### LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.  
Dig up heavily contaminated soil.  
Collect in containers for disposal.  
Flush residues with small quantities of water.  
Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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## 7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

### Handling

Do NOT taste or swallow.  
Avoid contact with eyes, skin and clothing.  
Avoid breathing vapour or mist.  
When using do not eat, drink or smoke.  
Wash hands thoroughly after handling or contact.  
Wash contaminated clothing before re-use.  
Thoroughly clean equipment after use.  
Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.  
Refer to section 13 of the safety data sheet for disposal of rinse water.  
Emptied containers retain vapour and product residue.  
**FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.**

### Storage

Compatible materials for storage: stainless steel, fibreglass, plastic, glass lining  
Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.  
Keep out of reach of children.  
Keep away from food, drink and animal feed.  
Keep only in the original container.  
Keep container tightly closed in a cool, well-ventilated place.  
Protect from freezing.  
Partial crystallization may occur on prolonged storage below the minimum storage temperature.  
If frozen, place in warm room and shake frequently to put back into solution.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Airborne exposure limits

Components	Exposure Guidelines
Diglycolamine salt of dicamba	No specific occupational exposure limit has been established.
Monoethanolamine salt of glyphosate	No specific occupational exposure limit has been established.
Amine Alkoxyate	No specific occupational exposure limit has been established.

Water and minor formulating ingredients	No specific occupational exposure limit has been established.
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**Engineering controls**

No special requirement when used as recommended.

**Eye protection**

If there is significant potential for contact:  
 Wear chemical goggles.

**Skin protection**

No special requirement when used as recommended.

If repeated or prolonged contact:  
 Wear chemical resistant gloves.

**Respiratory protection**

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Dark green
Odour:	Sweet
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Freezing point:	Not available.
Boiling point:	Not available.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Specific gravity:	1.225
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	Not available.
Kinematic viscosity:	Not applicable.
Density:	1.225 g/cm <sup>3</sup>
Solubility:	Water: Soluble
pH:	5
Partition coefficient:	log Pow: 2.21 (dicamba - unionized)
Partition coefficient:	log Pow: 0.54 (dicamba - ionized)
Partition coefficient:	log Pow: < -3.2 @ 25 °C (glyphosate)

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## 10. STABILITY AND REACTIVITY

### Stability

Stable under normal conditions of handling and storage.

### Oxidizing properties

No data.

### Materials to avoid/Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

### Self-accelerating decomposition temperature (SADT)

No data.

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## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product and components are summarized below.

### Acute oral toxicity

**Rat, LD50:** > 5,000 mg/kg body weight

No mortality. Practically non-toxic.

### Acute dermal toxicity

**Rat, LD50:** > 5,000 mg/kg body weight

No mortality. Practically non-toxic.

### Acute inhalation toxicity

**Rat, LC50, 4 hours, aerosol:** > 5.13 mg/L

Practically non-toxic.

### Skin irritation

**Rabbit, 3 animals:**

Days to heal: 3

Primary Irritation Index (PII): 0.1/8.0

Practically non irritating to skin (rabbit).

### Eye irritation

**Rabbit, 3 animals:**

Days to heal: 3

Slight irritation.

### Skin sensitization

**Guinea pig, 3-induction Buehler test:**

Positive incidence: 0 %

Negative.

### 3,6-Dichloro-O-anisic acid: (dicamba)

Data obtained on active ingredient(s) are summarized below.

### Genotoxicity

Not genotoxic on the basis of weight of evidence analysis.

### Carcinogenicity

Not carcinogenic in rats or mice.

**Reproductive/Developmental Toxicity**

No reproductive effects in rats.  
Decreased pup weights in rats.  
No developmental effects in rabbits.

**N-(phosphonomethyl)glycine; { glyphosate acid}**

**Genotoxicity**

Not genotoxic.

**Carcinogenicity**

Not carcinogenic in rats or mice.

**Reproductive/Developmental Toxicity**

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.  
Reproductive effects in rats only in the presence of significant maternal toxicity.

**Surfactant**

**Genotoxicity**

Not genotoxic.

**Reproductive/Developmental Toxicity**

Developmental effects in rats only in the presence of maternal toxicity.

**Surfactant(s)**

**EXPERIENCE WITH HUMAN EXPOSURE**

**Skin contact, short term, :**

**Skin effects:** irritation, redness

**Eye contact, short term, :**

**Eye effects:** irritation, eye inflammation (conjunctivitis), tearing (lachrymation)

**Ingestion, short term, :**

**Gastro-intestinal effects:** nausea/vomiting, diarrhoea

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**12. ECOLOGICAL INFORMATION**

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on active ingredient(s) are summarized below. The toxicity of this formulation to aquatic animals may be greater than the toxicity of the active ingredient if surfactants are present.

**N-(phosphonomethyl)glycine; { glyphosate acid}**

### Aquatic toxicity, fish

#### **Bluegill sunfish (*Lepomis macrochirus*):**

Acute toxicity, 96 hours, static, LC50: 120 mg/L  
Practically non-toxic.

#### **Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: 86 mg/L  
Slightly toxic.

### Aquatic toxicity, invertebrates

#### **Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, EC50: 780 mg/L  
Practically non-toxic.

### Aquatic toxicity, algae/aquatic plants

#### **Green algae (*Pseudokirchneriella subcapitata*):**

Acute toxicity, 96 hours, static, EbC50 (biomass): 17 mg/L  
Slightly toxic.

#### **Diatom (*Skeletonema costatum*):**

Acute toxicity, 96 hours, static, EbC50 (biomass): 11 mg/L  
Slightly toxic.

#### **Duckweed (*Lemna gibba*):**

Acute toxicity, 14 days, static, EC50 (frond number): 25.5 mg/L

### Avian toxicity

#### **Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight  
Practically non-toxic.

### Arthropod toxicity

#### **Honey bee (*Apis mellifera*):**

Oral, 48 hours, LD50: 100 µg/bee

#### **Honey bee (*Apis mellifera*):**

Contact, 48 hours, LD50: > 100 µg/bee  
Practically non-toxic.

### Bioaccumulation

#### **Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1  
No significant bioaccumulation is expected.

### Dissipation

#### **Soil, field:**

Half life: 2 - 174 days  
Koc: 884 - 60,000 L/kg  
Adsorbs strongly to soil.

#### **Water, aerobic:**

Half life: < 7 days

## 3,6-Dichloro-O-anisic acid; (dicamba)

### Aquatic toxicity, fish

#### **Bluegill sunfish (*Lepomis macrochirus*):**

Acute toxicity, 96 hours, static, LC50: 135.3 mg/L  
Practically non-toxic.

#### **Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: 28 - 135.4 mg/L  
No more than slightly toxic.

### Aquatic toxicity, invertebrates

#### **Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, EC50: 110.7 mg/L  
Practically non-toxic.

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#### **Aquatic toxicity, algae/aquatic plants**

##### **Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 120 hours, static, EC50: > 3.7 mg/L  
Moderately toxic.

##### **Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 120 hours, static, NOEC: 3.7 mg/L

##### **Diatom (*Skeletonema costatum*):**

Acute toxicity, 72 hours, static, EbC50 (biomass): 1.8 mg/L

#### **Avian toxicity**

##### **Mallard duck (*Anas platyrhynchos*):**

Acute oral toxicity, single dose, LD50: 1,373 mg/kg body weight  
Slightly toxic.

##### **Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, single dose, LD50: 216 mg/kg body weight  
Moderately toxic.

#### **Arthropod toxicity**

##### **Honey bee (*Apis mellifera*):**

Contact, 48 hours, LD50: > 90.65 µg/bee

#### **Bioaccumulation**

No significant bioaccumulation is expected.

#### **Biodegradation**

Not readily biodegradable.

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### **13. DISPOSAL CONSIDERATIONS**

#### **Product**

Keep out of drains, sewers, ditches and water ways.  
Recycle if appropriate facilities/equipment available.  
Burn in proper incinerator.  
Follow all local/regional/national/international regulations.

#### **Container**

See the individual container label for disposal information.  
Emptied containers retain vapour and product residue.  
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.  
Empty packaging completely.  
Triple or pressure rinse empty containers.  
Do NOT contaminate water when disposing of rinse waters.  
Ensure packaging cannot be reused.  
Do NOT re-use containers.  
Store for collection by approved waste disposal service.  
Recycle if appropriate facilities/equipment available.  
Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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### **14. TRANSPORT INFORMATION**

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

#### **US DOT basic description and technical name**

Not regulated for domestic ground transportation.



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## 15. REGULATORY INFORMATION

PCPA registered.

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## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

	Health	Flammability	Instability	Additional Markings
NFPA	1	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), STOT SE (Specific Target Organ Toxicity, Single Exposure), STOT RE (Specific Target Organ Toxicity, Repeated Exposure), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by product labeling and provincial legislation, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the PMRA-approved label.

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