

Monsanto Canada Safety Data Sheet Commercial Product
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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

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

1.1.1. Chemical name

Not applicable.

1.1.2. Synonyms

None.

1.1.3. PCP Reg. No.

32274

1.2. Product use

Herbicide

1.3. 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

1.4. 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).

2. HAZARDS IDENTIFICATION

2.1. Classification

Classification according to the Hazardous Products Regulations, 2015 Workplace Hazardous Materials
Information System (WHMIS 2015)

Not classified as hazardous.

2.2. Label elements

Hazard pictogram/pictograms

Not Applicable

Signal word

Not applicable.

Hazard statement/statements

Hxxx

Not applicable.

2.3. Other hazards

Not applicable.

2.4. Appearance and odour (colour/form/odour)
Blue-Green /Liquid / Sweet

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance: Not applicable.

3.2. Mixture: Yes.

Composition/information on ingredients

Components	CAS No.	Concentration
Diglycolamine salt of dicamba	104040-79-1	14.5 %
Monoethanolamine salt of glyphosate	40465-76-7	29.2 %
Amine Alkoxylate	68478-96-6	<=5.0 %
Water and minor formulating ingredients		<=53.0 %

The specific chemical identity and/or concentration range is being withheld because it is trade secret information of Monsanto Company.

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}

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

4.1. Description of first aid measures

4.1.1. 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.

4.1.2. 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.

4.1.3. 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.

4.1.4. 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.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1. 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.

- 4.3. Indication of any immediate medical attention and special treatment needed**
Not applicable.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

- 5.1.1. Recommended:** Water, Foam, Dry chemical, Carbon dioxide (CO₂)

5.2. Special hazards

5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination. Environmental precautions: see section 6.

5.2.2. Hazardous products of combustion

Carbon monoxide (CO), Hydrogen chloride (HCl), Nitrogen oxides (NO_x), Phosphorus oxides (P_xO_y)

5.3. Advice for firefighters

Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

5.4. Flash point

Does not flash.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

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

6.2. 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.

6.3. 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.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s)

Pesticide: Read and follow label instructions

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

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 Alkoxylate	No specific occupational exposure limit has been established.
Water and minor formulating ingredients	No specific occupational exposure limit has been established.

8.2. Exposure controls

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.

9.1 Information on basic physical and chemical properties

Colour/colour range:	Blue - Green
Form:	Liquid

Odour:	Sweet
Odour threshold:	No data.
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.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.225
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Dynamic viscosity:	Not available.
Kinematic viscosity:	Not applicable.
Density:	1.225 g/cm ³
Solubility:	Water: Soluble
pH:	5
Partition coefficient:	log Pow: 2.21 (Dicamba - unionized)
	log Pow: 0.54 (Dicamba - ionized)
	log Pow: < -3.2 @ 25 °C (Glyphosate)

9.2 Other information

Evaporation rate:	No data.
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10. STABILITY AND REACTIVITY

10.1. Reactivity

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

10.2. Chemical stability

Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

None

10.5. Incompatible materials

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.
Compatible materials for storage: see section 7.2.

10.6. Hazardous decomposition products

Hazardous products of combustion: see section 5.

11. TOXICOLOGICAL INFORMATION

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

11.1. Information on toxicological effects

Acute oral toxicity:

Acute dermal toxicity:

Acute inhalation toxicity:

Skin corrosion/irritation:

Eye corrosion/irritation:

Skin sensitization:

Respiratory sensitization:

Mutagenicity:

Carcinogenicity:

Reproductive/Developmental Toxicity:

Specific Target Organ Toxicity - Single Exposure:

Specific Target Organ Toxicity - Repeated Exposure:

Aspiration hazard:

Most important symptoms and effects, both acute and delayed

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.

If available, data obtained on similar products and/or on components are summarized below.

Similar formulation

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.

Skin irritation

Rabbit, 3 animals:

Redness, individual EU scores: 0; 0.3; 0

Swelling, individual EU scores: 0; 0; 0

Days to heal: 3

Practically non irritating to skin (rabbit).

Eye irritation

Rabbit, 3 animals:

Conjunctival redness, individual EU scores: 0.7; 0.7; 1.0

Conjunctival swelling, individual EU scores: 0.3; 0.0; 0.0

Corneal opacity, individual EU scores: 0.0; 0.0; 0.3
Iris lesions, individual EU scores: 0.0; 0.0; 0.0
Days to heal: 3
Slightly irritating to eyes but not sufficient for classification.
Slight irritation.

Acute inhalation toxicity

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

Practically non-toxic.

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.

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.

12.1 Toxicity

No data.

12.2 Persistence and degradability

No data.

12.3 Bioaccumulative potential

Refer to section 9 for partition coefficient data.

12.4 Mobility in soil

No data.

12.5 Results of PBT and vPvB assessment

No data.

12.6 Other adverse effects

No data.

12.7 Additional information

If available, data obtained on similar products and/or on components are summarized below.

N-(phosphonomethyl)glycine; {glyphosate acid}

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: 120 mg/L

Rainbow trout (*Oncorhynchus mykiss*):

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

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 780 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (*Pseudokirchneriella subcapitata*):

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

Diatom (*Skeletonema costatum*):

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

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

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: 100 µg/bee

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 100 µg/bee

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)

Data obtained on components are summarized below.

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: 135.3 mg/L

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, static, LC50: 28 - 135.4 mg/L

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 110.7 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

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

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

Bobwhite quail (*Colinus virginianus*):

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

Arthropod toxicity

Honey bee (*Apis mellifera*):

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

Bioaccumulation

No significant bioaccumulation is expected.

Biodegradation

Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

13.1.1. 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.

13.1.2. 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.

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.

Transport of Dangerous Goods Regulations (TDG)

14.1 UN No.: Not applicable.

14.2 Proper Shipping Name (Technical Name if required): Not regulated for domestic ground transportation.

14.3 Transport hazard class: Not applicable.

14.4 Packing Group: Not applicable.

14.5 Environmental hazards: Not applicable.

14.6 **Special precautions for the user: Not applicable.**

IMO

14.1 **UN No.:** Not applicable.

14.2 **Proper Shipping Name (Technical Name if required):** Not regulated for transport under IMO Regulations.

14.3 **Transport hazard class:** Not applicable.

14.4 **Packing Group:** Not applicable.

14.5 **Environmental hazards:** Not applicable.

14.6 **Special precautions for the user:** Not applicable.

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable.

IATA/ICAO

14.1 **UN No.:** Not applicable.

14.2 **Proper Shipping Name (Technical Name if required):** Not regulated for transport under IATA/ICAO Regulations.

14.3 **Transport hazard class:** Not applicable.

14.4 **Packing Group:** Not applicable.

14.5 **Environmental hazards:** Not applicable.

14.6 **Special precautions for the user:** Not applicable.

15. REGULATORY INFORMATION

15.1. Pest Management Regulatory Agency, Pest Control Products Act [PMRA PCPA]

PCPA registered.

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

This chemical is a pest control product regulated by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. The following is the hazard information required on the pest control product label:

CAUTION!

CAUSES TEMPORARY EYE IRRITATION

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

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.

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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