

Monsanto Canada
Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Rustler® Liquid Herbicide

PCP Reg. No.

27200

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: TS-SAFETYDATASHEET@DOMINO.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).

2. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): Amber / Liquid / Slight

DANGER!

MAY CAUSE IRREVERSIBLE DAMAGE TO EYES

HARMFUL IF SWALLOWED

HARMFUL IF INHALED

MAY CAUSE ALLERGIC SKIN REACTION

Potential health effects

Likely routes of exposure

Skin contact, eye contact

Eye contact, short term

Risk of serious damage to eyes.

Skin contact, short term

May cause allergic skin reaction.

Inhalation, short term

Harmful by inhalation.

Single ingestion

Harmful if swallowed.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

Isopropylamine salt of 3,6-dichloro-O-anisic acid; {Isopropylamine salt of dicamba}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	23.3
Isopropylamine salt of dicamba		5.1
Surfactant(s)		18
Water	7732-18-5	53.6

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

Hold eye 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 eye. Call a poison control centre or doctor for treatment advice.
Immediately flush with plenty of water.

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.
Get medical advice from a poison control center or doctor.

Ingestion

Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water or milk 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.
Immediately get medical advice from a poison control center or doctor.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

Flash point

None.

Extinguishing media

Recommended: Water, dry chemical, carbon dioxide (CO₂), foam

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), phosphorus oxides (P_xO_y), nitrogen oxides (NO_x)

Fire fighting equipment

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid all direct contact.
Use personal protection recommended in section 8.

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

Absorb in earth, sand or absorbent material.
Dig up heavily contaminated soil.
Collect in containers for disposal.
Refer to section 7 for types of containers.
Flush spill area with 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.

7. HANDLING AND STORAGE

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

Handling

Avoid contact with eyes, skin and clothing.
Avoid breathing vapour or mist.
Minimise dust.
When using do not eat, drink or smoke.
Wash hands thoroughly after handling or contact.
Wash contaminated clothing before re-use.
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, aluminium, fibreglass, plastic, glass lining
Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Isopropylamine salt of dicamba	No specific occupational exposure limit has been established.
Surfactant(s)	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

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Engineering controls

- Provide local exhaust ventilation.
- Have eye wash facilities immediately available at locations where eye contact can occur.

Eye protection

- Wear chemical goggles.

Skin protection

- Wear chemical resistant gloves.

Respiratory protection

- No special requirement when used as recommended.
- Observe respirator use limitations specified by NIOSH or the manufacturer.

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:	Amber
Odour:	Slight
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not available.
Flash point:	None.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Specific gravity:	1.124 15.6 - 20 °C
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	Not available.
Kinematic viscosity:	Not available.
Density:	Not available.
Solubility:	Completely miscible.
pH:	4.4 - 4.8 @ 50 g/l
Partition coefficient:	log Pow: -3.2 @ 25 °C (glyphosate)

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.

Hazardous polymerization

Does not occur.

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: 4,078 mg/kg body weight

Slightly toxic.

FIFRA category III.

Acute dermal toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 0.95 mg/L

Other effects: breathing difficulty

Slightly toxic.

FIFRA category III.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 10

Primary Irritation Index (PII): 0.6/8.0

Slight irritation.

FIFRA category IV.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: > 21

Other effects: vascularisation

FIFRA category I.

Eye corrosion.

Skin sensitization

Guinea pig, 3-induction Buehler test:

Positive incidence: 0 %

Negative.

N-(phosphonomethyl)glycine; {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems: none

Other effects: none

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet
Target organs/systems: none
Other effects: none

Chronic effects/carcinogenicity

Mouse, oral, 24 months:

NOAEL toxicity: ~ 5,000 mg/kg diet
Target organs/systems: liver
Other effects: decrease of body weight gain, histopathologic effects
NOEL tumour: > 30,000 mg/kg diet
Tumours: none

Rat, oral, 24 months:

NOAEL toxicity: ~ 8,000 mg/kg diet
Target organs/systems: eyes
Other effects: decrease of body weight gain, histopathologic effects
NOEL tumour: > 20,000 mg/kg diet
Tumours: none

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 10,000 mg/kg diet
NOAEL reproduction: > 30,000 mg/kg diet
Target organs/systems in parents: none
Other effects in parents: decrease of body weight gain
Target organs/systems in pups: none
Other effects in pups: decrease of body weight gain
Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight
NOAEL development: 1,000 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss, delayed ossification
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight
NOAEL development: 175 mg/kg body weight
Target organs/systems in mother animal: none
Other effects in mother animal: decrease of survival
Developmental effects: none

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

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic with and without metabolic activation.

Repeated dose toxicity

Rat, oral, 13 weeks:

NOAEL toxicity: 500 mg/kg body weight/day
Target organs/systems: liver
Other effects: histopathologic effects, weight loss

Rabbit, dermal, 21 days:

NOAEL toxicity: 1,000 mg/kg body weight/day
Target organs/systems: none
Other effects: local irritation

Chronic effects/carcinogenicity

Dog, oral, 1 years:

NOAEL toxicity: 52 mg/kg body weight/day
Target organs/systems: none

Other effects: none

Rat, oral, 2 years:

NOAEL toxicity: 125 mg/kg body weight/day

Target organs/systems: none

Other effects: none

No tumours.

Mouse, oral, 2 years:

NOAEL toxicity: 115 mg/kg body weight/day

Target organs/systems: none

Other effects: decrease of body weight gain, increased mortality

Tumours not related to treatment.

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 129 mg/kg body weight/day

NOAEL reproduction: 45 mg/kg body weight/day

Target organs/systems in parents: none

Other effects in parents: neurotoxic signs

Target organs/systems in pups: none

Other effects in pups: decrease of body weight gain

Developmental toxicity/teratogenicity

Rat, oral, 0 - 20 days of gestation:

NOAEL toxicity: 160 mg/kg body weight/day

NOAEL development: > 400 mg/kg body weight/day

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of survival, neurotoxic signs, decrease of body weight gain, decrease of food consumption

Developmental effects: none

Rabbit, oral, 6 - 18 days of gestation:

NOAEL toxicity: 30 mg/kg body weight/day

NOAEL development: 300 mg/kg body weight/day

Target organs/systems in mother animal: none

Other effects in mother animal: neurotoxic signs, decrease of body weight gain

Developmental effects: none

Other effects in foetus: none

Acute neurotoxicity

Rat, oral, single dose, :

NOAEL: < 300 mg/kg body weight

Other effects: neuromuscular effects

Repeated dose neurotoxicity

Rat, oral, 13 weeks, :

NOAEL: 437 mg/kg body weight/day

Other effects: equilibrium disturbances, neuromuscular effects

Surfactant

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rat, oral, 3 months:

NOAEL toxicity: >= 33 mg/kg body weight/day

Target organs/systems: none

Other effects: decrease of food consumption, weight loss, decrease of body weight gain, haematological effects, histopathologic effects, soft stools

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: ~ 17.5 mg/kg body weight/day

Target organs/systems in parents: none
Target organs/systems in pups: none
Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 15 days of gestation:

NOAEL toxicity: 15 mg/kg body weight/day
NOAEL development: > 300 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: weight loss, decrease of body weight gain, decrease of survival, decrease of food consumption
Developmental effects: none

12. ECOLOGICAL INFORMATION

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

Monsanto has not conducted environmental studies on this product. Data obtained on similar products and on components are summarized below.

Similar glyphosate/surfactant mixture

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L
Moderately toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L
Moderately toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 11 mg/L
Slightly toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.6 mg/L
Moderately toxic.

Duckweed (*Lemna minor*):

Acute toxicity, 7 days, static, EC50 (frond number): 6 mg/L

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 48 hours, LD50: > 338 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
Practically non-toxic.

Soil organism toxicity, microorganisms

Nitrogen transformation test:

24.45 kg/ha, 28 days: No effect on nitrogen transformation. No effect on soil microorganisms.

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

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: > 50 - 135.3 mg/L
No more than slightly 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.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

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

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 10,000 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 10,000 mg/kg diet
Practically non-toxic.

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

N-(phosphonomethyl)glycine: {glyphosate}

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

13. DISPOSAL CONSIDERATIONS

Product

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

Container

- See the individual container label for disposal information.
- 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.
- Emptied packages retain product residue and dust.
- Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.
- 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.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

PCPA registered.

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), 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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