Monsanto Canada

Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Rustler® Liquid Herbicide

PCP Reg. No.
27200
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).

2. HAZARDS IDENTIFICATION

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

DANGER!
POISON
CORROSIVE TO EYES
MAY CAUSE IRREVERSIBLE DAMAGE TO EYES
HARMFUL IF SWALLOWED
MAY CAUSE ALERGIC SKIN REACION
HARMFUL IF INHALED

Potential health effects
Likely routes of exposure
Skin contact, eye contact, inhalation, ingestion
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		4.1
Surfactant(s)		18
Water	7732-18-5	54.6

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.

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 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.

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
Does not flash.

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 (PxOy), nitrogen oxides (NOx), hydrogen chloride (HCl)

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
Minimum storage temperature: > 5 °C
Compatible materials for storage: stainless steel, aluminium, 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 container tightly closed in a cool, well-ventilated place.
Keep only in the original container.
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.

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.

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.
Wear long sleeved shirt, long pants and shoes with socks.

Respiratory protection

If airborne exposure is excessive:
Wear respirator.
Full facepiece/hood/helmet respirator replaces need for chemical goggles.
Respiratory protection programs must comply with all local/regional/national regulations.

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:	Does not flash.
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)

Partition coefficient:	log Pow: 0.54 (dicamba - ionized)
Partition coefficient:	log Pow: 2.21 (dicamba - unionized)

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
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 ppm
Tumours: none
Toxicity to reproduction/fertility
Rat, oral, 2 generations:
NOAEL toxicity: 10,000 ppm
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

Ethoxylated tallowamine

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.

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, 48 hours, LD50: > 395 µg/bee

Practically non-toxic.

Honey bee (Apis mellifera):

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.

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.

Aquatic toxicity, algae/aquatic plants

Green algae (Selenastrum capricornutum):

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

Moderately toxic.

Blue-green algae (Anabaena flos-aquae):

Acute toxicity, 120 hours, static, EC50: 0.06 mg/L

Very highly toxic.

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

Bioaccumulation

No significant bioaccumulation is expected.

N-(phosphonomethyl)glycine; { glyphosate}

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 (Selenastrum capricornutum):

Acute toxicity, 7 days, static, EC50: 13.8 mg/L
Slightly toxic.

Diatom (Skeletonema costatum):

Acute toxicity, 4 days, static, EC50: 1.3 mg/L
Moderately toxic.

Duckweed (Lemna gibba):

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

Avian toxicity

Bobwhite quail (Colinus virginianus):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

Mallard duck (Anas platyrhynchos):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

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

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 regulated for domestic transportation.

IMDG Code
|| Use description for ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

IATA/ICAO
|| Use description for ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

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.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any

of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

000000009516 End of document