

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: LONTREL™ 72 SG Herbicide

Issue Date: 12/19/2016

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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.

1. IDENTIFICATION

Product name: LONTREL™ 72 SG Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852
solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Granules.

Color Off-white

Odor Mild

Hazard Summary
CAUTION!! May cause eye irritation. May form explosive dust-air mixture. Isolate area. Toxic fumes may be released in fire situations. Slipping hazard.

Potential Health Effects

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

Inhalation: No adverse effects are anticipated from single exposure to vapor.
Mist may cause irritation of upper respiratory tract (nose and throat).

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

Skin: Brief contact is essentially nonirritating to skin.
Prolonged contact may cause slight skin irritation with local redness.
Repeated contact may cause slight skin irritation with local redness.

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

Eyes: May cause slight eye irritation.
Corneal injury is unlikely.
Solid or dust may cause irritation or corneal injury due to mechanical action.

Chronic Exposure: For similar active ingredient(s).
Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Clopyralid monoethanolamine salt	57754-85-5	94.9%
Balance	Not available	5.1%

4. FIRST AID MEASURES

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.

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.

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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents. Move container from fire area if this is possible without hazard. 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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. 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: 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.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Good housekeeping and controlling of dusts are necessary for safe handling of product. Avoid contact with eyes, skin, and clothing. Do not swallow. Avoid breathing dust or mist. Wash thoroughly after handling. Keep out of reach of children. 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. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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 safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Neoprene. 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: Wear clean, body-covering clothing.

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. In misty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Granules.
Color	Off-white
Odor	Mild
Odor Threshold	No test data available
pH	5.5 CIPAC MT 75.2
Melting point/range	No test data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup No test data available
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	The product is not flammable. <i>Flammability (solids)</i>
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	EC Method A16 None by test
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable

Explosive properties	Not explosive <i>EEC A14</i>
Oxidizing properties	No significant increase (>5C) in temperature.
Bulk density	0.63 kg/m ³
Molecular weight	No data available

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

10. STABILITY AND REACTIVITY

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. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with metals such as: Aluminum.

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: Hydrogen chloride. Nitrogen oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

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.

LD50, Rat, > 5,000 mg/kg OECD Test Guideline 423 No deaths occurred at this concentration.

Acute dermal toxicity

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

As product:

LD50, Rat, > 5,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. Mist may cause irritation of upper respiratory tract (nose and throat).

LC50, Rat, male and female, 4 Hour, > 5.88 mg/l OECD Test Guideline 403

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight eye irritation.

Corneal injury is unlikely.

Solid or dust may cause irritation or corneal injury due to mechanical action.

Sensitization

Contains component(s) which have not 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 active ingredient(s).

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

Carcinogenicity

For similar active ingredient(s). Clopyralid. Did not cause cancer in laboratory animals.

Teratogenicity

For similar active ingredient(s). Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

Reproductive toxicity

For similar active ingredient(s). Clopyralid. In animal studies, did not interfere with reproduction.

Mutagenicity

For similar active ingredient(s). Clopyralid. In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

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

12. ECOLOGICAL INFORMATION

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

Toxicity

Clopyralid monoethanolamine salt

Acute toxicity to fish

For similar material(s):

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, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 30 mg/l

Based on information for a similar material:

ErC50, Myriophyllum spicatum, 14 d, > 3 mg/l

Based on information for a similar material:

NOEC, Myriophyllum spicatum, 14 d, 0.0089 mg/l

Toxicity to Above Ground Organisms

For similar active ingredient(s).

Clopyralid.

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

For similar active ingredient(s).

oral LD50, Anas platyrhynchos (Mallard duck), 14 d, 1465 - 2000mg/kg bodyweight.

For similar active ingredient(s).

dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, > 5000mg/kg diet.

For similar active ingredient(s).

contact LD50, Apis mellifera (bees), 48 d, > 100micrograms/bee

For similar active ingredient(s).

oral LD50, Apis mellifera (bees), 48 d, > 98.1micrograms/bee

Balance

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Clopyralid monoethanolamine salt

Biodegradability: For similar active ingredient(s). Clopyralid. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Clopyralid monoethanolamine salt

Bioaccumulation: For similar active ingredient(s). Clopyralid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**Clopyralid monoethanolamine salt**

For similar active ingredient(s).

Clopyralid.

Potential for mobility in soil is very high (Koc between 0 and 50).

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Clopyralid)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Clopyralid

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Clopyralid)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Clopyralid
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Clopyralid)
UN number	UN 3077
Class	9
Packing group	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.

15. REGULATORY INFORMATION

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 (PCPA) Registration Number: 31039

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101212645 / A215 / Issue Date: 12/19/2016 / Version: 1.3

DAS Code: GF-1966

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.

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1. Product and Company Identification

Company

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA

24 Hour Emergency Response Information

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Molecular formula: C₁₃ H₁₅ N₃ O₃ ; C₁₅ H₁₉ N₃ O₄
PCP # 30188
Synonyms: imazamox and imazapyr

2. Hazards Identification

Emergency overview

CAUTION:
POISON.
KEEP OUT OF REACH OF CHILDREN.
Harmful if swallowed.
Irritating to eyes.
Irritating to skin.
Do not get in eyes, on skin, or on clothing.
Do not breathe gas/vapour/fume/spray.
Wash thoroughly after handling.

State of matter: liquid
Colour: yellow to amber
Odour: faint odour, aliphatic

Potential health effects**Acute toxicity:**

Relatively nontoxic after single ingestion. Relatively nontoxic after short-term inhalation. Relatively nontoxic after short-term skin contact.

Irritation / corrosion:

May cause slight irritation to the skin. May cause moderate but temporary irritation to the eyes.

Sensitization:

Skin sensitizing effects were not observed in animal studies.

Chronic toxicity:

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Carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Medical conditions aggravated by overexposure:

Individuals with pre-existing diseases of the respiratory system, skin or eyes may have increased susceptibility to excessive exposures.

Potential environmental effects

Aquatic toxicity:

Acutely harmful for fish. Acutely harmful for aquatic invertebrates. Acutely harmful for aquatic plants.

Terrestrial toxicity:

With high probability not acutely harmful to terrestrial organisms.

Degradation / environmental fate:

Not readily biodegradable (by OECD criteria).

3. Composition / Information on Ingredients

Not WHMIS controlled.

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

Note to physician

Antidote:	No known specific antidote.
Treatment:	Treat symptomatically.

5. Fire-Fighting Measures

Flash point:	> 115 °C	(DIN EN ISO 13736, closed cup) No flash point - Measurement made up to the indicated temperature, pilot light extinguishes.
Lower explosion limit:		not determined
Upper explosion limit:		not determined
Flammability:	does not ignite	
Self-ignition temperature:	398 °C	(Directive 92/69/EEC, A.15)

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Suitable extinguishing media:

foam, dry powder, carbon dioxide, water spray

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrocarbons,
If product is heated above decomposition temperature, toxic vapours will be released.

carbon monoxide, ammonia, nitrogen oxides

The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Handling**General advice:**

No special measures necessary if stored and handled correctly.

Protection against fire and explosion:

No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Storage**General advice:**

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

Storage incompatibility:

General advice: Segregate from foods and animal feeds. Segregate from oxidants. Segregate from reducing agents.

Temperature tolerance

Protect from temperatures below: -10 °C

The product can crystallize below the limit temperature.

Protect from temperatures above: 40 °C

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Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid, slightly viscous	
Odour:	faint odour, aliphatic	
Odour threshold:	No data available.	
Colour:	yellow to amber	
pH value:	6 - 7	(20 - 54 °C) (measured with the undiluted substance)
solidification temperature:	-14 °C	(1,013.3 hPa)
Boiling point:	approx. 100 °C	(1,013.3 hPa) Information applies to the solvent.
Vapour pressure:	approx. 23.3 hPa	(20 °C) Information applies to the solvent.
Density:	approx. 1.07 g/cm3	(20 °C)
Vapour density:		not determined
Viscosity, kinematic:	77 mm2/s	(20 °C)
Solubility in water:		soluble

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10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Substances to avoid:

strong bases, strong acids, strong oxidizing agents

Hazardous reactions:

The product is chemically stable.

Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature hazardous fumes may be released.

Corrosion to metals:

brass mild steel

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

11. Toxicological information

Acute toxicity

Oral:

Type of value: LD50

Species: rat (male/female)

Value: > 5,000 mg/kg (OECD Guideline 401)

Inhalation:

Type of value: LC50

Species: rat (male/female)

Value: > 6.18 mg/l (OECD Guideline 403)

Exposure time: 4 h

Dermal:

Type of value: LD50

Species: rabbit (male/female)

Value: > 5,000 mg/kg (OECD Guideline 402)

Irritation / corrosion

Skin:

Species: rabbit

Result: non-irritant

Eye:

Species: rabbit

Result: Slightly irritating.

Method: OECD Guideline 405

Sensitization:

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Buehler test
Species: guinea pig
Result: Non-sensitizing.
Method: OECD Guideline 406

Genetic toxicity

Information on: imazapyr
No mutagenic effect was found in various tests with microorganisms and mammals.

Information on: imazamox
No mutagenic effect was found in various tests with microorganisms and mammals.

Carcinogenicity

Information on: imazapyr
In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.
Information on: imazamox
In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Information on: imazapyr
The results of animal studies gave no indication of a fertility impairing effect.
Information on: imazamox
The results of animal studies gave no indication of a fertility impairing effect.

Development:

Information on: imazapyr
No indications of a developmental toxic / teratogenic effect were seen in animal studies.
Information on: imazamox
No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Other Information:

Misuse can be harmful to health.

12. Ecological Information

Fish

Acute:
EPA 72-1 Flow through.
Oncorhynchus mykiss/LC50 (96 h): > 83.2 mg/l

Aquatic invertebrates

Acute:
OPP 72-2 (EPA-guideline) static
Daphnia magna/EC50 (48 h): > 86.6 mg/l

Aquatic plants

Toxicity to aquatic plants:
OECD Guideline 201 static

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green algae/EC50 (72 h): > 90.6 mg/l

13. Disposal considerations

Waste disposal of substance:

Must be sent to a suitable incineration plant, observing local regulations.

Container disposal:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA released; restriction on quantity / not listed

Crop Protection DSL, CA released / exempt

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

Recommended use: herbicide

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our

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products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations

msds@basf.com

BASF HOTLINE (800) 454 – COPE (2673)

MSDS Prepared on: 2012/02/15

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END OF DATA SHEET

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1. Product and Company Identification

Company

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

24 Hour Emergency Response Information

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

PCP # 21058/24702

2. Hazards Identification

Emergency overview

WARNING:
POISON.
Skin Irritant
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IN CONTACT WITH SKIN.
This product is a skin irritant.
COMBUSTIBLE LIQUID.
Avoid inhalation of mists/vapours.
Avoid contact with the skin, eyes and clothing.
Wash thoroughly after handling.

State of matter: liquid
Colour: pale straw yellow
Odour: faintly aromatic

Potential health effects**Acute toxicity:**

Slightly toxic after single ingestion. Slightly toxic after short-term inhalation. Slightly toxic after short-term skin contact.

Irritation / corrosion:

Irritating to eyes and skin.

Sensitization:

There is no evidence of a skin-sensitizing potential.

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3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Hazardous ingredients</u>
91-20-3	>= 3.0 - <= 7.0 %	naphthalene

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:

Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Do not induce vomiting due to aspiration hazard.

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Note to physician

Antidote: No known specific antidote.

Treatment: Treat symptomatically.

5. Fire-Fighting Measures

Flash point:	65.5 °C	(closed cup)
Lower explosion limit:		not determined
Upper explosion limit:		not determined

Suitable extinguishing media:

water spray, dry powder, foam, carbon dioxide

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen oxides

The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

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6. Accidental release measures

Personal precautions:

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

For large amounts: Dike spillage. Pump off product.

7. Handling and Storage

Handling

General advice:

Provide good ventilation of working area (local exhaust ventilation if necessary).

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination.

Storage incompatibility:

General advice: Segregate from foods and animal feeds.

Temperature tolerance

Protect from temperatures below: 5 °C

Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with workplace control parameters

naphthalene	OSHA	PEL 10 ppm 50 mg/m3 ;
	ACGIH	TWA value 10 ppm ; STEL value 15 ppm ; Skin
		Designation ;
		The substance can be absorbed through the skin.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

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Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Remove contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	faintly aromatic	
Odour threshold:	No data available.	
Colour:	pale straw yellow	
pH value:		not applicable, not soluble
Freezing point:		Unspecified
Boiling range:	> 100 °C	The statements are based on the properties of the individual components.
Density:	0.934 g/cm3	(20 °C)
Vapour density:		not determined
Solubility in water:		emulsifiable

10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Substances to avoid:

strong oxidizing agents

Hazardous reactions:

The product is chemically stable.

No hazardous reactions when stored and handled according to instructions.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

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Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide

Stable at ambient temperature. If product is heated above decomposition temperature, toxic vapours will be released.

11. Toxicological information

Acute toxicity

Oral:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg

Information on: solvent naphtha

Type of value: LD50

Species: rat

Value: > 7,000 mg/kg

Inhalation:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Type of value: LC50

Species: rat

Value: > 0.25 - < 1 mg/l

Exposure time: 4 h

An aerosol was tested.

Information on: solvent naphtha

Type of value: LC50

Species: rat

Value: > 4 mg/l

Exposure time: 4 h

Dermal:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Value: > 4,000 mg/kg

Information on: solvent naphtha

Type of value: LD50

Species: rat

Value: > 3,160 mg/kg

Irritation / corrosion:

Skin:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Species: rabbit

Result: non-irritant

Method: BASF-Test

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Information on: solvent naphtha

Species: rabbit

Result: moderately irritating

Eye:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Species: rabbit

Result: non-irritant

Method: BASF-Test

Information on: solvent naphtha

Species: rabbit

Result: Slightly irritating.

Sensitization:

Information on: solvent naphtha

Buehler test

Species: guinea pig

Result: Non-sensitizing.

Genetic toxicity

Information on: solvent naphtha

No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in studies with mammals.

12. Ecological Information

Fish

Information on: Alcohols, C16-18, ethoxylated propoxylated

Acute:

Oncorhynchus mykiss/LC50: 0.1 - 1 mg/l

Information on: solvent naphtha

Acute:

OECD 203; ISO 7346; 84/449/EEC, C.1 semistatic

Oncorhynchus mykiss/LC50 (96 h): 18 mg/l

The statement of the toxic effect relates to the analytically determined concentration. The product has low solubility in the test medium. An aqueous dispersion has been tested.

Aquatic invertebrates

Information on: Alcohols, C16-18, ethoxylated propoxylated

Acute:

EC50 (48 h): 0.1 - 1 mg/l

Information on: solvent naphtha

Acute:

OECD Guideline 202, part 1 static

Daphnia magna/EC50 (48 h): 1.4 - 21 mg/l

The product has low solubility in the test medium. An aqueous dispersion has been tested.

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Aquatic plants

Information on: Alcohols, C16-18, ethoxylated propoxylated

Toxicity to aquatic plants:

EC50 (72 h): 0.1 - 1 mg/l

Information on: solvent naphtha

Toxicity to aquatic plants:

OECD Guideline 201 green algae/EC50 (72 h): 3.7 - 8.3 mg/l

Analogous: Assessment derived from products with similar chemical character.

The product has low solubility in the test medium. An aqueous dispersion has been tested.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Rinse the container or liner as needed for disposal. Add rinsate to spray tank. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Consult the product label for additional details.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SOLVENT NAPHTHA, FATTY ALCOHOL ETHOXYLATE 39%)

Air transport

IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SOLVENT NAPHTHA, FATTY ALCOHOL ETHOXYLATE 39%)

15. Regulatory Information

Federal Regulations

Registration status:

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Chemical DSL, CA blocked / not listed

Crop Protection DSL, CA released / listed

WHMIS does not apply to this product.

**THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR
AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.**

16. Other Information

Recommended use: adjuvant

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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