



Material Safety Data Sheet

LIBERTY® 200 SN HERBICIDE

MSDS Number: 102000020147

MSDS Version 1.0

Revision Date: 03/29/2010

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name LIBERTY® 200 SN HERBICIDE
MSDS Number 102000020147
PCP Registration No. 25337

Bayer CropScience Inc
 #200, 160 Quarry Park Blvd, SE
 Calgary, Alberta T2C 3G3
 Canada

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
 For Product Information call: 1-888-283-6847

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Glufosinate ammonium	77182-82-2	18.19
Sodium alkyl ether sulphate	68585-34-2	21.00
1-Methoxy-2-propanol 107-98	-2	10.00

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Warning! May be fatal if absorbed through skin. Harmful if swallowed. Moderate eye irritation. Do not get in eyes, on skin, or on clothing. Avoid breathing spray mist.

Physical State liquid, clear

Odor weakly pungent

Appearance blue

Routes of Exposure Eye contact, Ingestion, Inhalation, Skin Absorption

Immediate Effects

Eye Moderate eye irritation. Do not get in eyes.

Skin Causes skin irritation. May be fatal if absorbed through skin. Do not get on skin or clothing.

Ingestion Harmful if swallowed. Do not take internally.

Inhalation Avoid breathing spray mist.



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Chronic or Delayed Long-Term This product or its components may have target organ effects.

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	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 physician or poison control center immediately.
Skin	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Notes to Physician	
Signs and Symptoms	gastrointestinal discomfort hyperthermia dyspnoea tachycardia spasm daze Symptoms may be delayed.
Treatment	Endotracheal intubation and gastric lavage, followed by administration of charcoal and sodium sulphate.

SECTION 5. FIRE FIGHTING MEASURES

Flash point	approx. 65 °C / 149 °F
Autoignition Temperature	no data available
Lower Flammability Limit	no data available



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Upper Flammability Limit no data available

Explosiveness Not explosive

Fire and Explosion Hazards In the event of fire the following can be released:
Carbon monoxide (CO)
Nitrogen oxides (NOx)
Sulphur oxides
Hydrogen fluoride (HF)
Oxides of phosphorus
Cyanides

Suitable Extinguishing Media Water spray, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media High volume water jet

Fire Fighting Instructions Keep out of smoke. Fight fire from upwind position. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth. Do not allow run-off from fire fighting to enter drains or water courses.

In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Remove all sources of ignition. Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods for Cleaning Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional Advice Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact vegetation.

SECTION 7. HANDLING AND STORAGE

Handling Procedures Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Keep away from heat and sources of ignition.

Storing Procedures Store in a cool, dry place and in such a manner as to prevent cross



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contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Keep away from direct sunlight. Protect from freezing.

Work/Hygienic Procedures

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Min/Max Storage Temperatures

Recommended minimum transport/storage temperature: 0 °C / 32 °F
Recommended maximum transport/storage temperature: 51 °C / 124 °F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection

Train employees in safe use of the product. Follow all label instructions.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

Eye/Face Protection

Tightly fitting safety goggles

Hand Protection

Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)

Body Protection

Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory Protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

Glufosinate ammonium 77182-82-2	OES BCS*	0.9	mg/m3
1-Methoxy-2-propanol 107-98 -2	OEL (QUE)	TWA 100	ppm
	OEL (QUE)	STEL 150	ppm
	CAD AB OEL	TWA 100	ppm
	CAD AB OEL	STEL 150	ppm
	CAD BC OEL	TWA 50	ppm
	CAD BC OEL	STEL 75	ppm
	CAD ON OEL	TWA 100	ppm
	CAD ON OEL	STEL 150	ppm

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	blue
Physical State	liquid, clear
Odor	weakly pungent
pH	5.5 - 7.5 (100 %) at 20 °C
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	approx. 1.11 g/cm ³ at 20 °C
Evaporation rate	no data available
Boiling Point	> 90 °C / > 194 °F
Melting / Freezing Point	no data available
Minimum Ignition Energy	no data available
Decomposition Temperature	400 °C
Partition coefficient: n-octanol/water	log Pow: -4.01 measured at pH 7

SECTION 10. STABILITY AND REACTIVITY

Conditions to Avoid	Heat, flames and sparks. Exposure to moisture.
Incompatibility	Bases
Hazardous Decomposition Products	Thermal decomposition Nitrogen oxides (NOx) Carbon monoxide Sulphur oxides Hydrogen fluoride (HF) Oxides of phosphorus
Hazardous Reactions	Stable under recommended storage conditions.



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SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, glufosinate-ammonium.

Acute Oral Toxicity	male rat: LD50: 2,170 mg/kg
female	rat: LD50: 1,910 mg/kg
Acute Dermal Toxicity	male rat: LD50: 1,000 mg/kg
	female rat: LD50: 1,000 mg/kg
Acute Inhalation Toxicity	male rat: LC50: 3.22 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
	female rat: LC50: 4.31 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
	male rat: LC50: 12.88 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
	female rat: LC50: 17.24 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin Irritation	rabbit: Slight irritation.
Eye Irritation	rabbit: Moderate eye irritation.
Sensitization	guinea pig: Non-sensitizing.
Chronic Toxicity	Glufosinate-ammonium caused kidney effects and/or mortality at high dose levels in chronic toxicity studies in rats, mice and dogs.

Assessment Carcinogenicity

Glufosinate-ammonium was not carcinogenic in lifetime feeding studies in rats and mice.

- ACGIH**
None.
- NTP**
None.
- IARC**
None.



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OSHA
None.

Reproductive & Developmental Toxicity

REPRODUCTION: Glufosinate-ammonium was not a primary reproductive toxicant in rats. There was a decrease in the number of viable pups at the high dose in conjunction with maternal toxicity.

DEVELOPMENTAL TOXICITY: Glufosinate-ammonium was not a primary developmental toxicant in rats and rabbits. Developmental effects (e.g., delayed ossifications) were observed in rats but were considered secondary to maternal toxicity.

Neurotoxicity

Glufosinate-ammonium was not a neurotoxicant in acute and subacute neurotoxicity screening studies in rats. In a developmental neurotoxicity study in rats, offspring exposed to glufosinate-ammonium showed increases in locomotor activities. These effects occurred at high doses and in conjunction with maternal toxicity.

Mutagenicity

Glufosinate-ammonium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to Fish Rainbow trout (*Oncorhynchus mykiss*)
LC50: 34 mg/l
Exposure time: 96 h

Toxicity to Aquatic Plants *Desmodesmus subspicatus*
EC50: 36 mg/l
Exposure time: 72 h

Acute Toxicity to Aquatic Invertebrates Water flea (*Daphnia magna*)
EC50: 26.8 mg/l
Exposure time: 48 h

Environmental Precautions

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label. Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants.



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SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility. Do not contaminate water, food, or feed by disposal.

Container Disposal Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

SECTION 14. TRANSPORT INFORMATION

TDG (Canada):
UN 2902, PESTICIDE, LIQUID, TOXIC, N.O.S. (Glufosinate ammonium), Class 6.1, P.G. III

SECTION 15. REGULATORY INFORMATION

PCP Registration No. 25337

US Federal Regulations

TSCA list

Sodium alkyl ether sulphate	68585-34-2
1-Methoxy-2-propanol	107-98-2

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

1-Methoxy-2-propanol	107-98-2	CA, IL, MN, RI
None.		

Canadian Regulations

Canadian Domestic Substance List

Sodium alkyl ether sulphate	68585-34-2
1-Methoxy-2-propanol	107-98-2

Environmental



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CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 2 Reactivity - 1 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Updated due to corrected system migration and/or numbering scheme.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 03/29/2010

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