



Material Safety Data Sheet
LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
 MSDS Version 1.2
 Revision Date: 06/22/2011
 Print Date: 01/05/2012

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name LIBERTY® 280 SL HERBICIDE
MSDS Number 102000020747
EPA Registration No. 264-829
Product Use Herbicide

Bayer CropScience
 2 T.W. Alexander Drive
 Research Triangle PK, NC 27709
 USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
 For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. HAZARDS IDENTIFICATION

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

Emergency Overview Warning! May be fatal if absorbed through skin. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Physical State liquid

Appearance red

Exposure routes Eye contact, Ingestion, Inhalation, Skin Absorption

Immediate Effects

Eye Severe eye irritation. Causes substantial but temporary eye injury. Do not get in eyes.

Skin May cause skin irritation. Skin sensitiser. May be fatal if absorbed through skin. Do not get in eyes, on skin, or on clothing.

Ingestion Harmful if swallowed. Do not take internally.

Inhalation May cause irritation. Avoid breathing spray mist.

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



Material Safety Data Sheet

LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Glufosinate ammonium	77182-82-2	24.50
Sodium alkyl ether sulphate	68585-34-2	31.60
1-Methoxy-2-propanol	107-98-2	1.00
Dipropylene glycol	25265-71-8	8.60
Alkyl polysaccharide	68515-73-1	9.80

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 Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

Flash point	> 93.4 °C / 200.1 °F
Autoignition temperature	no data available
Lower Flammability Limit	no data available
Upper Flammability Limit	no data available



Material Safety Data Sheet

LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

Fire and Explosion Hazards	In the event of fire the following may be released: Carbon monoxide (CO) Sulphur oxides Carbon dioxide (CO ₂)
Suitable extinguishing media	Carbon dioxide (CO ₂), Dry powder, Foam, Water spray
Unsuitable extinguishing media	High volume water jet
Fire Fighting Instructions	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. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	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, sawdust). Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Do not allow product to contact vegetation. Use personal protective equipment.

SECTION 7. HANDLING AND STORAGE

Handling procedures	Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation. 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 contamination with other crop protection products, 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.
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



Material Safety Data Sheet
LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
 MSDS Version 1.2

product. Before removing gloves clean them with soap and water. Wash thoroughly and put on clean clothing.

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 nitrile rubber gloves
- 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*	TWA	0.9 mg/m3
1-Methoxy-2-propanol	107-98-2	ACGIH	TWA	100 ppm
		ACGIH	STEL	150 ppm
		NIOSH	REL	100 ppm
		NIOSH	STEL	150 ppm
		OSHA Z1A	TWA	100 ppm
		OSHA Z1A	STEL	150 ppm
		US CA OEL	TWA PEL	100 ppm
		US CA OEL	STEL	150 ppm
		TX ESL	ST ESL	1,000 ppm
		TX ESL	AN ESL	100 ppm
		TX ESL	ST ESL	3700 ug/m3
		TX ESL	AN ESL	370 ug/m3
		TN OEL	TWA	100 ppm
		TN OEL	STEL	150 ppm
		TX ESL	ST ESL	1000 ppb
		TX ESL	AN ESL	100 ppb

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

**Material Safety Data Sheet**
LIBERTY® 280 SL HERBICIDEMSDS Number: 102000020747
MSDS Version 1.2**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	red
Physical State	liquid
pH	6.6 - 7.8 (100 %) at 20 °C
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	1.15 g/cm ³ at 20 °C
Evaporation rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Water solubility	miscible
Partition coefficient: n-octanol/water	no data available
Viscosity	100 - 300 mPa.s at 20 °C

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	Heat, flames and sparks. Exposure to moisture.
Incompatibility	Strong acids Bases Strong oxidizing agents
Chemical Stability	Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity data have been bridged from a very similar formulation containing a similar concentration of the active ingredient, glufosinate-ammonium. The non-acute information pertains to the technical-grade active ingredient.

Acute oral toxicity	female rat: LD50: > 300 - < 2,000 mg/kg
----------------------------	---



Material Safety Data Sheet

LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

Acute dermal toxicity	male rat: LD50: 1,400 mg/kg female rat: LD50: 800 mg/kg
Acute inhalation toxicity	male/female combined rat: LC50: > 2.1 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. (actual) male/female combined rat: LC50: > 8.4 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. (actual) Extrapolated from the 4 hr LC50.
Skin irritation	rabbit: slight irritation
Eye irritation	rabbit: Severe eye irritation.
Sensitisation	guinea pig: Sensitising
Chronic toxicity	Glufosinate-ammonium was well tolerated in the rat but less well tolerated in the dog in subchronic studies. Glufosinate-ammonium has demonstrated effects on the central nervous system at high dose levels in standard toxicity studies using laboratory animals.
Assessment Carcinogenicity	
Glufosinate-ammonium was not carcinogenic in lifetime feeding studies in rats and mice.	
ACGIH	
None.	
NTP	
None.	
IARC	
None.	
OSHA	
None.	
Reproductive toxicity	Implantation loss occurred at high dose levels in a rat multigeneration study with Glufosinate-ammonium. There were no effects on male fertility.
Developmental Toxicity	Tests in the rat and rabbit indicate that exposure to high dose levels of Glufosinate-ammonium may result in embryotoxicity.
Mutagenicity	Glufosinate-ammonium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION



Material Safety Data Sheet

LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

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.

Do not allow to get into surface water, drains and ground water. Drift or runoff from treated areas may adversely affect non-target plants.

Apply this product as specified on the label. Do not apply when weather conditions favor runoff or drift.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Do not contaminate water, food, or feed by disposal. 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.

Container Disposal

Follow advice on product label and/or leaflet. 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.

RCRA Information

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14. TRANSPORT INFORMATION

49CFR

Not dangerous goods / not hazardous material

IMDG

UN-Number **2902**
Class 6.1
Packaging group III
Marine pollutant NO
Description of the goods PESTICIDE, LIQUID, TOXIC, N.O.S.
(GLUFOSINATE-AMMONIUM SOLUTION)

IATA

UN-Number **2902**
Class 6.1
Packaging group III
Environm. Hazardous Mark NO
Description of the goods PESTICIDE, LIQUID, TOXIC, N.O.S.
(GLUFOSINATE-AMMONIUM SOLUTION)



Material Safety Data Sheet

LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 264-829

US Federal Regulations

TSCA list

Sodium alkyl ether sulphate	68585-34-2
1-Methoxy-2-propanol	107-98-2
Dipropylene glycol	25265-71-8
Alkyl polysaccharide	68515-73-1

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
----------------------	----------	----------------

Canadian Regulations

Canadian Domestic Substance List

Sodium alkyl ether sulphate	68585-34-2
1-Methoxy-2-propanol	107-98-2
Dipropylene glycol	25265-71-8
Alkyl polysaccharide	68515-73-1

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Glufosinate ammonium	77182-82-2
1-Methoxy-2-propanol	107-98-2



Material Safety Data Sheet
LIBERTY® 280 SL HERBICIDE

MSDS Number: 102000020747
MSDS Version 1.2

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 1 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

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

Reason for Revision: Reviewed and updated for general editorial purposes. The following sections have been revised: Section 3: Composition / Information on Ingredients. Section 16: Other Information.

Revision Date: 06/22/2011

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.