

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

1/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name LIBERTY® 280 SL HERBICIDE

Product code (UVP) 79502745, 84986666

SDS Number 102000020747

EPA Registration No. 264-829

Relevant identified uses of the substance or mixture and uses advised against

Use Herbicide

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

Skin sensitisation: Category 1

Reproductive toxicity: Category 1B

Specific target organ toxicity - repeated exposure: Category 2

Eye irritation: Category 2A

Acute toxicity(Oral, Inhalation): Category 4



SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

2/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Signal word: Danger

Hazard statements

Harmful if swallowed or if inhaled.
Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure.
May damage fertility or the unborn child.
May cause an allergic skin reaction.

Precautionary statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Do not breathe spray.
Contaminated work clothing should not be allowed out of the workplace.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
Rinse mouth.
IF ON SKIN: Wash with plenty of water/ soap.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
Wash contaminated clothing before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Glufosinate ammonium	77182-82-2	24.5
Alkylethersulfate, sodium salt	68891-38-3	22.1
1-Methoxy-2-propanol	107-98-2	1.0
Alkyl polysaccharide	68515-73-1	6.2

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

3/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
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.
Skin contact	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.
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 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.

Most important symptoms and effects, both acute and delayed

Symptoms Irritation, Sensitising effects

Indication of any immediate medical attention and special treatment needed

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

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

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

Unsuitable High volume water jet

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

4/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Further information	Fight fire from upwind position. Keep out of smoke. 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.
Flash point	> 93.3 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

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 non-target plants. Use personal protective equipment.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures 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. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

5/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Requirements for storage areas and containers

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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Glufosinate ammonium	77182-82-2	0.9 mg/m ³ (TWA)		OES BCS*
1-Methoxy-2-propanol	107-98-2	50 ppm (TWA)	02 2013	ACGIH
1-Methoxy-2-propanol	107-98-2	100 ppm (STEL)	02 2013	ACGIH
1-Methoxy-2-propanol	107-98-2	540 mg/m ³ /150 ppm (STEL)	2010	NIOSH
1-Methoxy-2-propanol	107-98-2	360 mg/m ³ /100 ppm (REL)	2010	NIOSH
1-Methoxy-2-propanol	107-98-2	360 mg/m ³ /100 ppm (TWA)	1989	OSHA Z1A
1-Methoxy-2-propanol	107-98-2	540 mg/m ³ /150 ppm (STEL)	1989	OSHA Z1A
1-Methoxy-2-propanol	107-98-2	540 mg/m ³ /150 ppm (STEL)	06 2008	TN OEL
1-Methoxy-2-propanol	107-98-2	380 mg/m ³ /100 ppm (TWA)	06 2008	TN OEL
1-Methoxy-2-propanol	107-98-2	370ug/m ³ (AN ESL)	07 2011	TX ESL
1-Methoxy-2-propanol	107-98-2	3700ug/m ³ (ST ESL)	07 2011	TX ESL
1-Methoxy-2-propanol	107-98-2	1000ppb (ST ESL)	07 2011	TX ESL
1-Methoxy-2-propanol	107-98-2	100ppb (AN ESL)	07 2011	TX ESL
1-Methoxy-2-propanol	107-98-2	540 mg/m ³ /150 ppm (STEL)	08 2010	US CA OEL
1-Methoxy-2-propanol	107-98-2	360 mg/m ³ /100 ppm (TWA PEL)	08 2010	US CA OEL
Sodium alkyl ether sulphate	68585-34-2	50ug/m ³ (ST ESL)	03 2014	TX ESL
Sodium alkyl ether sulphate	68585-34-2	5ug/m ³ (AN ESL)	03 2014	TX ESL
Dipropylene glycol	25265-71-8	1200ug/m ³ (ST ESL)	07 2011	TX ESL
Dipropylene glycol	25265-71-8	120ug/m ³	07 2011	TX ESL

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

6/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

		(AN ESL)		
Alkyl polysaccharide	68515-73-1	600ug/m3 (ST ESL)	07 2011	TX ESL
Alkyl polysaccharide	68515-73-1	60ug/m3 (AN ESL)	07 2011	TX ESL

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

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

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.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Tightly fitting safety goggles

Skin and body protection

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

General protective measures

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	red
Physical State	Liquid
Odor	characteristic
Odour Threshold	No data available
pH	6.6 - 7.8 at 100 % (23 °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
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

7/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Partition coefficient: n-octanol/water	No data available
Viscosity	100 - 300 mPa.s at 20 °C
Flash point	> 93.3 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Not applicable
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Exposure to moisture.
Incompatible materials	Strong acids, Bases, Strong oxidizing agents
Hazardous decomposition products	Carbon oxides Sulphur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Ingestion, Inhalation, Skin Absorption
Immediate Effects	
Eye	Severe eye irritation. Causes substantial but temporary eye injury.
Skin	May cause skin irritation. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	May cause irritation.
Information on toxicological effects	
Acute oral toxicity	LD50 (female Rat) > 300 - < 2,000 mg/kg
Acute inhalation toxicity	LC50 (male/female combined Rat) > 2.1 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. (actual)

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

8/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Acute dermal toxicity	LD50 (male/female combined Rat) > 2,000 mg/kg
Skin irritation	slight irritation (Rabbit)
Eye irritation	Severe eye irritation. (Rabbit)
Sensitisation	Sensitising (Guinea pig)

Assessment repeated dose toxicity

Glufosinate-ammonium caused neurobehavioral effects and/or neuropathological changes in animal studies. Glufosinate-ammonium was well tolerated in rats and mice but less well tolerated in the dog in subchronic studies.

Assessment mutagenicity

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

Assessment carcinogenicity

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

ACGIH

1-Methoxy-2-propanol	107-98-2	Group A4
----------------------	----------	----------

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Implantation loss occurred in a rat multigeneration study with Glufosinate-ammonium. There were no effects on male fertility.

Assessment developmental toxicity

Glufosinate-ammonium caused developmental toxicity only at dose levels toxic to the dams. Glufosinate-ammonium caused an increased incidence of post implantation losses.

Further information

Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Pimephales promelas (fathead minnow)) 461 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient glufosinate-ammonium.
-------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

9/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Toxicity to aquatic invertebrates	LC50 (Daphnia magna (Water flea)) > 560 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient glufosinate-ammonium.
Toxicity to aquatic plants	EC50 (Desmodemus subspicatus (green algae)) 1,129 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient glufosinate-ammonium.
Biodegradability	Glufosinate-ammonium: Not rapidly biodegradable
Koc	Glufosinate-ammonium: Koc: 2.3
Bioaccumulation	Glufosinate-ammonium: Bioconcentration factor (BCF) < 1 Does not bioaccumulate.
Mobility in soil	Glufosinate-ammonium: Highly mobile in soils
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 allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	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.
Contaminated packaging	Follow advice on product label and/or leaflet. Triple rinse containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial 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

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

10/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

IMDG

UN number	2902
Class	6.1
Packaging group	III
Marine pollutant	NO
Proper shipping name	PESTICIDE, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM SOLUTION)

IATA

UN number	2902
Class	6.1
Packaging group	III
Environm. Hazardous Mark	NO
Proper shipping name	PESTICIDE, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM SOLUTION)

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

Alkylethersulfate, sodium salt	68891-38-3
1-Methoxy-2-propanol	107-98-2
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, CT, MN
----------------------	----------	------------

Canadian Regulations

Canadian Domestic Substance List

None.

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

11/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

EPA/FIFRA Information:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Warning!

Hazard statements:

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

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
CAS-Nr.	Chemical Abstracts Service number
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	US. IARC Monographs on Occupational Exposures to Chemical Agents
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

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

SAFETY DATA SHEET



LIBERTY® 280 SL HERBICIDE

Version 3.0 / USA
102000020747

12/12
Revision Date: 03/30/2016
Print Date: 03/31/2016

Reason for Revision: Reviewed and updated for general editorial purposes. The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 11: Toxicological Information. Section 16: Other Information.

Revision Date: 03/30/2016

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.