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

Product identifier

Trade name LIBERTY® 280 SL HERBICIDE
Product code (UVP) 84918180
SDS Number 102000031468
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

Labelling in accordance with regulation HCS 29CFR §1910.1200

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 UNBORNE 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 physical hazards not otherwise classified.
No health hazards not otherwise classified.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

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

**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.

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
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.

**Reference to other sections**

Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

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**

**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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
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<tbody>
<tr>
<td>Glufosinate ammonium</td>
<td>77182-82-2</td>
<td>0.9 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
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<tr>
<td>1-Methoxy-2-propanol</td>
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<td>50 ppm (TWA)</td>
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<td>ACGIH</td>
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<tr>
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<td>100 ppm (STEL)</td>
<td>02 2013</td>
<td>ACGIH</td>
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<td>NIOSH</td>
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<tr>
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<td>OSHA Z1A</td>
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<tr>
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<td>TX ESL</td>
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<td>07 2011</td>
<td>TX ESL</td>
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<td>1-Methoxy-2-propanol</td>
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<td>Sodium alkyl ether sulphate</td>
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<td>03 2014</td>
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<td>Sodium alkyl ether sulphate</td>
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<tr>
<td>Alkyl polysaccharide</td>
<td>68515-73-1</td>
<td>60ug/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer AG, Crop Science Division "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/cm³ 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
- **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)

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 STOT Specific target organ toxicity – repeated exposure
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.

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 (Desmodesmus 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**

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

---

**SECTION 15: REGULATORY INFORMATION**

**EPA Registration No.**
264-829
US Federal Regulations

TSCA list
- Alkylethersulfate, sodium salt: 68891-38-3
- 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.

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
ATE  
Acute toxicity estimate
CAS-Nr.  
Chemical Abstracts Service number
CERCLA  
Comprehensive Environmental Response, Compensation, and Liability Act
EINECS  
European inventory of existing commercial substances
ELINCS  
European list of notified chemical substances
IARC  
International Agency for Research on Cancer
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):

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Reason for Revision: New Safety Data Sheet.

Revision Date: 01/30/2017

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