



LANDMARK® XP HERBICIDE

Version 2.0 / USA
102000030336

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Revision Date: 09/02/2015
Print Date: 09/03/2015

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

Product identifier

Trade name LANDMARK® XP HERBICIDE

Product code (UVP) 84129674

SDS Number 102000030336

EPA Registration No. 432-1560

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 Environmental Science
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 1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Component Name | CAS-No. | Concentration % by weight |
|--------------------------|------------|---------------------------|
| SULFOMETURON METHYL | 74222-97-2 | 50.0 |
| chlorsulfuron | 64902-72-3 | 25.0 |



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SECTION 4: FIRST AID MEASURES

Description of first aid measures

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|-----------------------|---|
| 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 No symptoms known or expected.

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 Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)

Unsuitable None known.

Special hazards arising from the substance or mixture Accumulation of fine dust may entail the risk of a dust explosion in the presence of air.

Advice for firefighters

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

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point not applicable



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|---------------------------------|---|
| Autoignition temperature | no data available |
| Lower explosion limit | not applicable |
| Upper explosion limit | not applicable |
| Explosivity | Dust may form explosive mixture in air. |
| Dust explosion class | 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 Avoid dust formation. Use approved industrial vacuum cleaner for removal. Sweep up or vacuum up spillage and collect in suitable container for disposal. Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Do not allow to enter soil, waterways or waste water canal.

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. Avoid dust formation. Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion Avoid dust formation by friction. Dust may form explosive mixture in air. 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. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities



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Requirements for storage areas and containers Store in original container. 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

| Components | CAS-No. | Control parameters | Update | Basis |
|---------------------|------------|------------------------------------|---------|-----------|
| SULFOMETURON METHYL | 74222-97-2 | 5 mg/m ³ (TWA) | 02 2012 | ACGIH |
| SULFOMETURON METHYL | 74222-97-2 | 50ug/m ³ (ST ESL) | 07 2011 | TX ESL |
| SULFOMETURON METHYL | 74222-97-2 | 5ug/m ³ (AN ESL) | 07 2011 | TX ESL |
| SULFOMETURON METHYL | 74222-97-2 | 3.5 mg/m ³ (TWA PEL) | 08 2010 | US CA OEL |

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 Safety glasses with side-shields

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 light tan
Physical State solid
Odor none
Odour Threshold no data available
pH no data available
Vapor Pressure no data available
Vapor Density (Air = 1) no data available



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|---|---|
| Evaporation rate | no data available |
| Boiling Point | not applicable |
| Melting / Freezing Point | not applicable |
| Water solubility | dispersible |
| Minimum Ignition Energy | no data available |
| Decomposition temperature | no data available |
| Partition coefficient: n-octanol/water | no data available |
| Viscosity | not applicable |
| Flash point | not applicable |
| Autoignition temperature | no data available |
| Lower explosion limit | not applicable |
| Upper explosion limit | not applicable |
| Explosivity | Dust may form explosive mixture in air. |
| Dust explosion class | no data available |

SECTION 10: STABILITY AND REACTIVITY

Reactivity

| | |
|---|--|
| Thermal decomposition | no data available |
| Chemical stability | Stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | no data available |
| Incompatible materials | no data available |
| Hazardous decomposition products | No decomposition products expected under normal conditions of use. |

SECTION 11: TOXICOLOGICAL INFORMATION

| | |
|--------------------------|--|
| Exposure routes | Eye contact, Skin contact, Inhalation, Ingestion |
| Immediate Effects | |
| Eye | Moderate eye irritation. |



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Ingestion Harmful if swallowed.

Information on toxicological effects

Acute oral toxicity LD50 (rat) > 5,000 mg/kg
The value mentioned relates to the active ingredient sulfometuron methyl.
LD50 (rat) > 2,000 mg/kg
The value mentioned relates to the active ingredient chlorsulfuron.

Acute inhalation toxicity LC50 (rat) > 5.3 mg/l
Exposure time: 4 h
The value mentioned relates to the active ingredient sulfometuron methyl.
LC50 (rat) > 5.5 mg/l
Exposure time: 4 h
The value mentioned relates to the active ingredient chlorsulfuron.

Acute dermal toxicity LD50 (rabbit) > 5,000 mg/kg
The value mentioned relates to the active ingredient sulfometuron methyl.
LD50 (rat) > 5,000 mg/kg
The value mentioned relates to the active ingredient chlorsulfuron.

Skin irritation Mild skin irritation. (rabbit)
The value mentioned relates to the active ingredient sulfometuron methyl.
Mild skin irritation. (rat)
The value mentioned relates to the active ingredient chlorsulfuron.

Eye irritation Mild eye irritation.
The value mentioned relates to the active ingredient sulfometuron methyl.
Mild eye irritation.
The value mentioned relates to the active ingredient chlorsulfuron.

Sensitisation Non-sensitizing.
The value mentioned relates to the active ingredient sulfometuron methyl.
Non-sensitizing.
The value mentioned relates to the active ingredient chlorsulfuron.

ACGIH

SULFOMETURON METHYL 74222-97-2 Group A4

NTP

None.

IARC

None.

OSHA

None.



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Further information

Only acute toxicity studies have been performed on the formulated product.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Oncorhynchus mykiss (rainbow trout)) > 148 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient sulfometuron methyl.

LC50 (Lepomis macrochirus (Bluegill sunfish)) > 150 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient sulfometuron methyl.

LC50 (Cyprinodon variegatus (sheepshead minnow)) > 980 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient chlorsulfuron.

LC50 (Lepomis macrochirus (Bluegill sunfish)) > 0.128 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient chlorsulfuron.

LC50 (Oncorhynchus mykiss (rainbow trout)) > 0.122 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient chlorsulfuron.

Toxicity to aquatic invertebrates

NOEC (Daphnia magna (Water flea)) > 150 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient sulfometuron methyl.

EC50 (Daphnia magna (Water flea)) > 0.112 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient chlorsulfuron.

Toxicity to aquatic plants

EC50 (Chlorella vulgaris (Fresh water algae)) 0.05 ppm
Exposure time: 120 h
The value mentioned relates to the active ingredient chlorsulfuron.

Toxicity to other organisms

LC50 (Anas platyrhynchos (Mallard duck)) > 5,000 mg/kg
The value mentioned relates to the active ingredient sulfometuron methyl.

LC50 (Colinus virginianus (Bobwhite quail)) > 5,620 mg/kg
The value mentioned relates to the active ingredient sulfometuron methyl.

LD50 (Anas platyrhynchos (Mallard duck)) > 5,000 mg/kg
The value mentioned relates to the active ingredient chlorsulfuron.



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LD50 (Colinus virginianus (Bobwhite quail)) > 5,620 mg/kg
The value mentioned relates to the active ingredient chlorsulfuron.

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.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product Do not contaminate water, food, or feed by disposal.
Dispose in accordance with all local, state/provincial and federal regulations.
Follow container label instructions for disposal of wastes generated during use in compliance with the product label.

Contaminated packaging Do not re-use empty containers.
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.

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. 432-1560

US Federal Regulations

TSCA list

None.

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



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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

chlorsulfuron 64902-72-3 NJ, RI

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: Caution!

Hazard statements: Harmful if swallowed.
Moderate eye irritation.
Avoid contact with skin, eyes and clothing.

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 |



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| | |
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| 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 - 1 Flammability - 1 Instability - 0 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: New Safety Data Sheet.

Revision Date: 09/02/2015

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