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

Product identifier

Trade name: FINALE® HERBICIDE
Product code (UVP): 05950643
SDS Number: 102000004004
EPA Registration No.: 432-1229

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

Use: Herbicide
Restrictions on use: See product label for restrictions.

Information on manufacturer

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

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

Product Information Telephone Number

SDS Information or Request: SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Reproductive toxicity: Category 1B
Specific target organ toxicity - repeated exposure: Category 2
Eye irritation: Category 2A
Acute toxicity (Inhalation): Category 4

Signal word: Danger

Hazard statements
May damage fertility or the unborn child.
May cause damage to organs (nervous system) through prolonged or repeated exposure.
Causes serious eye irritation.
Harmful if inhaled.
Precautionary statements
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.
Do not breathe spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
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 INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Other hazards
No other hazards known.

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>11.33</td>
</tr>
<tr>
<td>Sodium alkyl ether sulphate</td>
<td>68585-34-2</td>
<td>12.70</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>10.00</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**
- Gastrointestinal disturbance
- Tremors
- Convulsions
- Drowsiness
- Diarrhoea
- Vomiting
- Nausea
- Muscular weakness
- Tachycardia
- Respiratory failure
- Unconsciousness
- Coma

Symptoms may be delayed.

**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. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.

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**SECTION 5: FIREFIGHTING MEASURES**

**Extinguishing media**

**Suitable**
- Carbon dioxide (CO2)
- Foam
- Water spray
- Dry powder

**Unsuitable**
- None known.

**Special hazards arising from the substance or mixture**
In the event of fire the following may be released:
- Hydrogen cyanide (hydrocyanic acid)
- Carbon monoxide (CO)
- Oxides of phosphorus
- Nitrogen oxides (NOx)

**Advice 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**
- > 100 °C

**Autoignition 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

Isolate hazard area. Keep unauthorized people away. 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). 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 non-target plants.

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

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.

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. Remove soiled clothing immediately and clean thoroughly before using again. 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
</table>


**Glufosinate ammonium** 77182-82-2 0.9 mg/m3 (TWA) OES BCS*

**Sodium alkyl ether sulphate (Particulate.)** 68585-34-2 5ug/m3 (AN ESL) 02 2013 TX ESL

**Sodium alkyl ether sulphate (Particulate.)** 68585-34-2 50ug/m3 (ST ESL) 02 2013 TX ESL

**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** 107-98-2 360 mg/m3/100 ppm (REL) 2010 NIOSH

**1-Methoxy-2-propanol** 107-98-2 540 mg/m3/150 ppm (STEL) 2010 NIOSH

**1-Methoxy-2-propanol** 107-98-2 360 mg/m3/100 ppm (TWA) 1989 OSHA Z1A

**1-Methoxy-2-propanol** 107-98-2 540 mg/m3/150 ppm (STEL) 1989 OSHA Z1A

**1-Methoxy-2-propanol** 107-98-2 380 mg/m3/100 ppm (TWA) 06 2008 TN OEL

**1-Methoxy-2-propanol** 107-98-2 540 mg/m3/150 ppm (STEL) 06 2008 TN OEL

**1-Methoxy-2-propanol** 107-98-2 1000ppb (ST ESL) 07 2011 TX ESL

**1-Methoxy-2-propanol** 107-98-2 3700ug/m3 (ST ESL) 07 2011 TX ESL

**1-Methoxy-2-propanol** 107-98-2 370ug/m3 (AN 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/m3/150 ppm (STEL) 08 2010 US CA OEL

**1-Methoxy-2-propanol** 107-98-2 360 mg/m3/100 ppm (TWA PEL) 08 2010 US CA OEL

*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 gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
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.
Eye wash facility and safety shower should be available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
blue

Physical State
Liquid

Odor
weakly pungent

Odour Threshold
no data available

pH
5.5 - 7.5 at 100 %

Vapor Pressure
no data available

Vapor Density (Air = 1)
no data available

Density
c. 1.06 g/cm³ at 20 °C

Evaporation rate
no data available

Boiling Point
no data available

Melting / Freezing Point
no data available

Water solubility
soluble

Minimum Ignition Energy
not applicable

Decomposition temperature
not applicable

Partition coefficient: n-octanol/water
no data available

Viscosity
no data available

Flash point
> 100 °C

Autoignition 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 Extremes of temperature and direct sunlight.
Incompatible materials Bases
Hazardous decomposition products Ammonia

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Eye contact, Inhalation, Skin Absorption, Ingestion
Immediate Effects
Eye Causes substantial but temporary eye injury. May cause severe eye irritation.
Skin Harmful if absorbed through skin. May cause slight irritation.
Ingestion Harmful if swallowed.
Inhalation Harmful if inhaled.
Information on toxicological effects
Acute oral toxicity LD50 (male/female combined rat) 3,570 mg/kg
Acute inhalation toxicity LC50 (female rat) 4.14 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
Acute dermal toxicity LD50 (rat) > 2,000 mg/kg
Skin irritation Slight irritation (rabbit)
Eye irritation Severe eye irritation. (rabbit)
Sensitisation Non-sensitizing. (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
Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

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 contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
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
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.
Dispose in accordance with all local, state/provincial and federal
regulations.

Contaminated packaging
Do not use containers for other products.
Triple rinse containers.
Puncture container to avoid re-use.
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.

Freight Classification: COMPOUNDS, TREE OR WEEDKILLING, N.O.I., other than
poison; HAVING A DENSITY OF GREATER THAN 20 LBS.
PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1229
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
None.
Canadian Regulations

Canadian Domestic Substance List

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

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)
1-Methoxy-2-propanol 107-98-2

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, inhaled or absorbed through the skin.
Avoid contact with skin, eyes and clothing.
Avoid inhalation of vapour or mist.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2  Flammability - 1  Instability - 0  Others - none


Health - 2  Flammability - 1  Physical Hazard - 0  PPE -

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

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

Revision Date: 07/14/2014

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