



Material Safety Data Sheet

FINALE® HERBICIDE

MSDS Number: 102000004004

MSDS Version 2.0

Revision Date: 03/07/2007

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name FINALE® HERBICIDE
MSDS Number 102000004004
EPA Registration No. 432-1229

Bayer Environmental Science
 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: 1-800-331-2867

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Glufosinate ammonium	77182-82-2	11.33
Ethoxylated dodecanol, monoether with sulfuric acid, sodium salt	9004-82-4	
1-Methoxy-2-propanol	107-98-2	

SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview Warning! 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.

Physical State liquid

Odor weakly pungent

Appearance blue to blue green

Routes of Exposure Eye contact, Inhalation, Skin Absorption, Ingestion

Immediate Effects

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

Skin Harmful if absorbed through skin. May cause slight irritation. Avoid contact with skin and clothing.



Material Safety Data Sheet

MSDS Number: 102000004004
MSDS Version 2.0

FINALE® HERBICIDE

Ingestion	Harmful if swallowed. Do not take internally.
Inhalation	Harmful if inhaled. Avoid inhalation of vapour or mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects.

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 Signs and Symptoms	<p>Gastrointestinal disturbance Tremors Convulsions Drowsiness Diarrhoea Vomiting Nausea muscular weakness tachycardia respiratory failure unconsciousness coma</p> <p>Symptoms may be delayed.</p>
Treatment	Endotracheal intubation and gastric lavage, followed by administration of charcoal and sodium sulphate. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.



Material Safety Data Sheet
FINALE® HERBICIDE

MSDS Number: 102000004004
 MSDS Version 2.0

SECTION 5. FIRE FIGHTING MEASURES

Flash point	> 100 °C / 212 °F
Suitable Extinguishing Media	Carbon dioxide (CO2), Foam, Water spray, Dry powder
Fire Fighting Instructions	<p>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.</p> <p>Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.</p>

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.
Methods for Cleaning Up	Take up with absorbent material (e.g. sand, diatomaceous earth or a proprietary absorbent material). 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 vegetation.

SECTION 7. HANDLING AND STORAGE

Handling Procedures	<p>Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.</p> <p>Keep away from heat and sources of ignition.</p>
Storing Procedures	Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.
Work/Hygienic Procedures	<p>Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.</p> <p>Remove contaminated clothing immediately and dispose of safely.</p> <p>Remove Personal Protective Equipment (PPE) immediately after handling this</p>



Material Safety Data Sheet

FINALE® HERBICIDE

MSDS Number: 102000004004
MSDS Version 2.0

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	Follow all label instructions. Train employees in safe use of the product. Eye wash facility and safety shower should be available. 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 gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
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

1-Methoxy-2-propanol	107-98-2	ACGIH	TWA		100 ppm
		ACGIH	STEL		150 ppm
		NIOSH	REL	100 ppm	360 mg/m3
		NIOSH	STEL	150 ppm	540 mg/m3
		OSHA Z1A	TWA	100 ppm	360 mg/m3
		OSHA Z1A	STEL	150 ppm	540 mg/m3
		US CA OEL	TWA PEL	100 ppm	360 mg/m3
		US CA OEL	STEL	150 ppm	540 mg/m3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	blue to blue green
Physical State	liquid
Odor	weakly pungent
pH	5.5 - 7.5 (undiluted)
Density	approx. 1.06 g/cm ³ at 20 °C
Water solubility	soluble



Material Safety Data Sheet
FINALE® HERBICIDE

MSDS Number: 102000004004
 MSDS Version 2.0

SECTION 10. STABILITY AND REACTIVITY

Incompatibility	Bases
Hazardous Decomposition Products	ammonia
Hazardous Reactions	Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, glufosinate-ammonium.

Acute Oral Toxicity	male/female combined rat: LD50: 3,570 mg/kg
Acute Dermal Toxicity	rat: LD50: > 2,000 mg/kg
Acute Inhalation Toxicity	male/female combined rat: LC50: 5.3 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
	male/female combined rat: LC50: > 20 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin Irritation	rabbit: Slight irritation.
Eye Irritation	rabbit: Severe eye irritation.
Sensitization	guinea pig: Non-sensitizing.
Chronic Toxicity	Glufosinate-ammonium caused kidney effects and/or mortality at high dose levels in chronic toxicity studies in rats, mice and dogs.

Assessment Carcinogenicity

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

- ACGIH**
None.
- NTP**
None.
- IARC**
None.
- OSHA**
None.



Material Safety Data Sheet

MSDS Number: 102000004004
MSDS Version 2.0

FINALE® HERBICIDE

Reproductive & Developmental Toxicity

REPRODUCTION: Glufosinate-ammonium was not a primary reproductive toxicant in rats. There was a decrease in the number of viable pups at the high dose in conjunction with maternal toxicity.

DEVELOPMENTAL TOXICITY: Glufosinate-ammonium was not a primary developmental toxicant in rats and rabbits. Developmental effects (e.g., delayed ossifications) were observed in rats but were considered secondary to maternal toxicity.

Neurotoxicity

Glufosinate-ammonium was not a neurotoxicant in acute and subacute neurotoxicity screening studies in rats. In a developmental neurotoxicity study in rats, offspring exposed to glufosinate-ammonium showed increases in locomotor activities. These effects occurred at high doses and in conjunction with maternal toxicity.

Mutagenicity

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

SECTION 12. ECOLOGICAL INFORMATION

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

General Disposal Guidance

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

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.

SECTION 14. TRANSPORT INFORMATION

TRANSPORTATION CLASSIFICATION:
Not regulated for Domestic Surface Shipment

FREIGHT CLASSIFICATION:
Compounds, Tree or Weedkilling, N.O.I., other than poison, having a density of 20 LBS or greater per cubic foot



Material Safety Data Sheet

FINALE® HERBICIDE

MSDS Number: 102000004004
MSDS Version 2.0

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1229

US Federal Regulations

TSCA list

Ethoxylated dodecanol, monoether with sulfuric acid, sodium salt 9004-82-4
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

1-Methoxy-2-propanol 107-98-2 CA, CT, IL, MN, RI

Canadian Regulations

Canadian Domestic Substance List

Ethoxylated dodecanol, monoether with sulfuric acid, sodium salt 9004-82-4
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)

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



Material Safety Data Sheet
FINALE® HERBICIDE

MSDS Number: 102000004004
MSDS Version 2.0

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

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

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

Reason to Revise: Updated for general editorial purposes. Updated due to new system and numbering scheme.

Revision Date: 03/07/2007

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.