



FINALE

Version 1 / GB
102000012524

1/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

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

1.1 Product identifier

Trade name FINALE
Product code (UVP) 05693569

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

Use Herbicide

1.3 Details of the supplier of the safety data sheet

Supplier Bayer Environmental Science
230 Cambridge Science Park
Milton Road
Cambridge
Cambridgeshire CB4 0WB
Great Britain

Telephone 00800-1214 9451
Telefax +44(0)1223 426240
Responsible Department Email: ukinfo@bayercropscience.com

1.4 Emergency telephone no.

Emergency telephone no. 0800-220876 (UK 24 hr)
+44(0)1635-563000 (Overseas 24 hr)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful, R48/22
Repr.Cat.2, R60
Repr.Cat.3, R63

2.2 Label elements

Labelling according to specific UK regulations:

The labelling information below is that which has been approved under 'The Control of Pesticides Regulations 1986' and/or 'Part III of the Food and Environment Protection Act 1985' and/or 'Plant Protection Product Regulations 1999' and any subsequent amendments and may differ from that indicated by any toxicological and/or other testing otherwise indicated in this 'Safety Data Sheet'. Hazard label for supply/use required.

Hazardous components which must be listed on the label:

- Glufosinate ammonium

Symbol(s)

T

Toxic

**FINALE**Version 1 / GB
102000012524

2/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

R-phrase(s)

R36	Irritating to eyes.
R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R60	May impair fertility.
R63	Possible risk of harm to the unborn child.

To avoid risks to man and the environment, comply with the instructions for use.

S-phrase(s)

S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53	Avoid exposure - obtain special instructions before use.

2.3 Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures****Chemical nature**

Soluble concentrate (SL)
contains Glufosinate-ammonium 120 g/l

Hazardous components

R-phrase(s) according to EC directive 67/548/EEC
Hazard statements according to Regulation (EC) No. 1907/2006

Name	CAS-No. / EC-No.	Classification		Concentration [%]
		EC Directive 67/548/EEC	Regulation (EC) No 1272/2008	
Glufosinate ammonium	77182-82-2 278-636-5	Repr.Cat.2 R60 Repr.Cat.3 R63 Xn; R20/21/22, R48/20/22	Repr. 1B, H360Fd Acute Tox. 4, H332 Acute Tox. 4, H312 Acute Tox. 4, H302 STOT RE 2, H373	11.30
Alkylethersulfate, sodium salt	68891-38-3	Xi; R38, R41	Eye Dam. 1, H318 Skin Irrit. 2, H315	> 10.00
1-Methoxy-2- propanol	107-98-2 203-539-1	R10 R67	Flam. Liq. 3, H226 STOT SE 3, H336	> 1.00 - < 15.00

Further information

For the full text of the R-phrases/ Hazard statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES



FINALE

Version 1 / GB
102000012524

3/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

4.1 Description of first aid measures

Inhalation

Move to fresh air. Keep patient warm and at rest. If symptoms persist, call a physician.

Skin contact

Wash off with soap and water. Take off contaminated clothing and shoes immediately. If symptoms persist, call a physician.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Vomiting, Diarrhoea, Abdominal pain, Tremors, Hypotension, muscular weakness, Tachycardia, Unconsciousness, Coma, Convulsions, Nausea, Respiratory failure, Symptoms may be delayed.

4.3 Indication of any immediate medical attention and special treatment needed

Risks

Watch victim for at least 48 hours because of possible delayed signs of poisoning.

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.

Forced alkaline diuresis and hemodialysis may be considered.

There is no specific antidote.

In case of convulsions, a benzodiazepine (e.g. diazepam) should be given according to standard regimens.

If not effective, phenobarbital may be used.

Contraindication: atropine.

Oxygen or artificial respiration if needed.

Keep respiratory tract clear.

ECG - monitoring (Electrocardiogram).

EEG - monitoring (Electroencephalogram).

Monitor: respiratory, cardiac and central nervous system.

Keep under medical supervision for at least 48 hours.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Water spray

Foam

Carbon dioxide (CO₂)

Dry powder



FINALE

Version 1 / GB
102000012524

4/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire the following may be released:

Carbon monoxide (CO)

Nitrogen oxides (NO_x)

Oxides of phosphorus

5.3 Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

6.2 Environmental precautions

Do not allow to get into surface water, drains and ground water.

If spillage enters drains leading to sewage works inform local water company immediately.

If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 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.

6.4 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

7.1 Precautions for safe handling

Advice on safe handling

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice.

Ensure adequate ventilation.

**FINALE**Version 1 / GB
102000012524

5/10

Revision Date: 17.09.2012
Print Date: 28.05.2013**Hygiene measures**

When using, do not eat, drink or smoke.

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove soiled clothing immediately and clean thoroughly before using again.

Keep working clothes separately.

Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities**Requirements for storage areas and containers**

Store in original container.

Keep away from direct sunlight.

Keep containers tightly closed in a dry, cool and well-ventilated place.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Suitable materials

HDPE (high density polyethylene)

7.3 Specific end uses

Refer to the label and/or leaflet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 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	375 mg/m ³ / 100 ppm (TWA)	12 2011	EH40 WEL
1-Methoxy-2-propanol	107-98-2	560 mg/m ³ / 150 ppm (STEL)	12 2011	EH40 WEL
1-Methoxy-2-propanol	107-98-2	568 mg/m ³ / 150 ppm (STEL)	12 2009	EU ELV
1-Methoxy-2-propanol	107-98-2	375 mg/m ³ / 100 ppm (TWA)	12 2009	EU ELV

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

8.2 Exposure controls

Refer to COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004). Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer also to COSHH Essentials.

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

No personal respiratory protective equipment normally required.
Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have



FINALE

Version 1 / GB
102000012524

6/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Hand protection	Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness 0,40 mm). Wash when contaminated. Dispose of when contaminated inside, when perforated or when contamination outside cannot be removed. Wash hands always before eating, drinking, smoking or using the toilet.
Eye protection	Wear goggles conforming to EN166 (Field of Use 5 or equivalent).
Skin and body protection	Wear standard coverall and type 6 suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	blue to blue green
Odour	weakly pungent
pH	5.7 - 7.7 at 100 % (23 °C)
Boiling point/boiling range	> 90 °C cannot be determined, Test conducted with a similar formulation.
Flash point	> 100 °C
Ignition temperature	ca. 445 °C Test conducted with a similar formulation.
Density	ca. 1.06 g/cm ³ at 20 °C
Impact Sensitivity	not impact-sensitive
Explosivity	Not explosive

9.2 Other information

Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Thermal decomposition



FINALE

Version 1 / GB
102000012524

7/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

> 400 °C, Heating rate: 10 K/min
Test conducted with a similar formulation.
Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions when stored and handled according to prescribed instructions.

10.4 Conditions to avoid

Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Bases
Store only in the original container.

10.6 Hazardous decomposition products

Ammonia
No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	LD50 (rat) 3,030 mg/kg
Acute inhalation toxicity	LC50 (rat) 5.3 mg/l Exposure time: 4 h Determined in the form of a respirable aerosol. During intended and foreseen applications, no respirable aerosol is formed.
Acute dermal toxicity	LD50 (rat) > 4,000 mg/kg
Skin irritation	Slight irritant effect - does not require labelling. (rabbit)
Eye irritation	Slight irritant effect - does not require labelling. (rabbit)
Sensitisation	Non-sensitizing. (guinea pig) OECD Test Guideline 406, Buehler test

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.

Assessment Toxicity to Reproduction



FINALE

Version 1 / GB
102000012524

8/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

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

The toxicological data refer to a similar formulation.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 (Rainbow trout (*Oncorhynchus mykiss*)) 42.3 mg/l
Exposure time: 96 h
Test conducted with a similar formulation.

Toxicity to aquatic invertebrates EC50 (Water flea (*Daphnia magna*)) > 100 mg/l
Exposure time: 48 h
Test conducted with a similar formulation.

Toxicity to aquatic plants EC50 (*Desmodosmus subspicatus*) 36 mg/l
Exposure time: 72 h
Test conducted with a similar formulation.

Toxicity to bacteria EC50 (Activated sludge) > 1,000 mg/l
Exposure time: 3 h
The value mentioned relates to the active ingredient glufosinate-ammonium.

12.2 Persistence and degradability

Biodegradability The product is readily degradable in the environment.

12.3 Bioaccumulative potential

Bioaccumulation Not applicable for this mixture.

12.4 Mobility in soil

Mobility in soil Not applicable for this mixture.

12.5 Results of PBT and vPvB assessment

Not relevant as no chemical safety report is necessary.

12.6 Other adverse effects

Additional ecological information

No other effects to be mentioned.

SECTION 13: DISPOSAL CONSIDERATIONS



FINALE

Version 1 / GB
102000012524

9/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

13.1 Waste treatment methods

Product

In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.

Advice may be obtained from the local waste regulation authority (part of the Environment Agency in the UK).

Contaminated packaging

Small containers (< 10 l or < 10 kg) should be rinsed thoroughly using an integrated pressure rinsing device, or, by manually rinsing three times.

Add washings to sprayer at time of filling.

Dispose of empty and cleaned packaging safely.

Large containers (> 25 l or > 25 kg) should not be rinsed or re-used for any other purpose.

Return large containers to supplier.

Follow advice on product label and/or leaflet.

Waste key for the unused product

020108 agrochemical waste containing dangerous substances

SECTION 14: TRANSPORT INFORMATION

According to ADN/ADR/UK 'Carriage' Regulations/RID/IMDG/IATA not classified as dangerous goods.

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

14.1 – 14.5 Not applicable.

14.6 Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No transport in bulk according to the IBC Code.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Further information

WHO-classification: III (Slightly hazardous)

15.2 Chemical Safety Assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R10

Flammable.

R20/21/22

Harmful by inhalation, in contact with skin and if swallowed.



FINALE

Version 1 / GB
102000012524

10/10

Revision Date: 17.09.2012
Print Date: 28.05.2013

R38	Irritating to skin.
R41	Risk of serious damage to eyes.
R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through
R60	inhalation and if swallowed. May impair fertility.
R63	Possible risk of harm to the unborn child.
R67	Vapours may cause drowsiness and dizziness.

Text of the hazard statements mentioned in Section 3

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

The above information is intended to give general health and safety guidance on the storage and transport of the product.

It is not intended to apply to the use of the product for which purposes the product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with.

The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate.

No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

Reason for Revision: Safety Data Sheet according to Regulation (EU) No. 453/2010.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.