

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

DL-Phosphinothricin

Version number: 2
 Issued: 2024-03-26
 Replaces SDS: 2022-07-05



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name

DL-Phosphinothricin

CAS number

77182-82-2

Synonyms

Glufosinate-ammonium; Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt; ammonium (2RS)-2-amino-4-(methylphosphinato)butyric acid

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

Relevant identified uses

Research and development. Laboratory Chemicals. Manufacture of substances.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
 DL1 4XX Darlington
 United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Reproductive toxicity, hazard category 1B
Specific Target Organ Toxicity — Repeated exposure, hazard category 2
Acute toxicity, oral, hazard category 4
Acute toxicity, dermal, hazard category 4
Acute toxicity, inhalation, hazard category 4

Hazard statements

H302, H312, H332, H360, H373

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.

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Precautionary statements

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust/fumes/gas/mist/vapours/spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 P302 + P352 IF ON SKIN: Wash with plenty of water/.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P308 + P313 IF exposed or concerned: Get medical advice/attention.
 P314 Get medical advice/attention if you feel unwell.
 P330 Rinse mouth.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P501 Dispose of contents/container to local regulations.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
glufosinate ammonium (ISO); ammonium 2-amino-4- (hydroxymethylphosphinyl)but yrate	77182-82-2 278-636-5 - 015-155-00-X	100%	Acute Tox. 4 - oral, Acute Tox. 4 - dermal, Acute Tox. 4 - inhala- tion, STOT RE 2, Repr. 1B	H302, H312, H332, H360FD, H373 - -	-

Molecular weight

198.16

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

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SECTION 4: First aid measures

4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact

IF ON SKIN: Wash with plenty of water. Continue to rinse for at least 15 minutes and seek medical attention. Get medical advice/attention if you feel unwell.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

Information for doctors

First aiders/ medical personnel need to protect themselves.

4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

Inhalation

Single exposure may cause the following adverse effects: Upper respiratory irritation. Difficulty in breathing.

Skin contact

Single exposure may cause the following adverse effects: Severe skin irritation.

Eye contact

Single exposure may cause the following adverse effects: Severe irritation.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. Nausea, vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards: None.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Carbon monoxide (CO). Carbon dioxide (CO₂).

Nitrous gases (NO_x).

Oxides of phosphorus

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection, see section 8.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.

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General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry place. Store in a closed container. Recommended storage temperature: 2 to 8°C (35.6 to 46.4°F)

Moisture Sensitive. Handle under argon

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	DNEL	Chronic (long term) Dermal	0.33 mg/kg bw/day	Workers	Systemic
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	DNEL	Chronic (long term) Inhalation	0.33 mg/m ³	Workers	Systemic

PNEC/PEC

Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Freshwater	0.0039 mg/l
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Sediment (freshwater)	0.0156 mg/kg sediment dw
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Intermittent releases	0.00129 mg/l
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Sewage Treatment Plant	10 mg/l

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Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)			
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Soil	0.0189 mg/kg soil dry weight
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Marine water	0.00039 mg/l
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate (77182-82-2/278-636-5)	PNEC	Sediment (marine water)	0.00156 mg/kg sedi- ment dw

8.2. Exposure controls

Personal Protective Equipment Symbols



Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves. Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls

Avoid discharge into drains.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Solid

Colour

White / off-white.

Odour

No data available

Melting point / freezing point

215 °C

Boiling point or initial boiling point and boiling range

519 °C

Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

No data available

Auto-ignition temperature

No data available

Decomposition temperature

No data available

pH

No data available

Kinematic viscosity

No data available

Solubility

No data available

Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

No data available

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Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Heating.

10.5. Incompatible materials

Strong oxidising agents.

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product / Sub- stance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of exposure	Test animals
glufosinate ammonium (ISO); ammonium 2- amino-4-(hydroxy- methylphosphinyl)b utyrate 77182-82-2 / 278- 636-5	LD50	1620 mg/kg	Oral	-	Rat
glufosinate	LD50	1380 mg/kg	Dermal	-	Rat

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Product / Sub- stance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of expos- ure	Test animals
ammonium (ISO); ammonium 2- amino-4-(hydroxy- methylphosphinyl)b utyrate 77182-82-2 / 278- 636-5					
glufosinate ammonium (ISO); ammonium 2- amino-4-(hydroxy- methylphosphinyl)b utyrate 77182-82-2 / 278- 636-5	LC50	1260 mg/m3	Inhalation	4 hours	Rat

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species
glufosinate ammonium (ISO); ammonium 2-amino-4- (hydroxymethylphosphinyl)butyrate 77182-82-2 / 278-636-5	No skin irritation.	Rabbit

Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Species
glufosinate ammonium (ISO); ammonium 2-amino-4- (hydroxymethylphosphinyl)butyrate 77182-82-2 / 278-636-5	No eye irritation.	Rabbit

Reproductive toxicity

Product / Substance name CAS / EC no.	Result
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxy- methylphosphinyl)butyrate	Presumed human reproductive toxicant

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Product / Substance name CAS / EC no.	Result
77182-82-2 / 278-636-5	

STOT-repeated exposure

Product / Substance name CAS / EC no.	Result
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate 77182-82-2 / 278-636-5	May cause damage to organs through prolonged or repeated exposure if swallowed.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate 77182-82-2 / 278-636-5	LC50	710 mg/l	96 hours	Onchorhynchus mykiss (Rainbow trout)

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
glufosinate ammonium (ISO); ammonium 2-amino-4-(hydroxymethylphosphinyl)butyrate	EC50	560 mg/l	48 hours	Daphnia magna

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Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
ate 77182-82-2 / 278-636-5				

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

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14.6. Special precautions for user

Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations

REACH Glufosinate ammonium

15.2. Chemical safety assessment

No data available

SECTION 16: Other information

Phrase meaning

Repr. 1B - Reproductive toxicity, hazard category 1B

STOT RE 2 - Specific Target Organ Toxicity — Repeated exposure, hazard category 2

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Acute Tox. 4 - dermal - Acute toxicity, dermal, hazard category 4

Acute Tox. 4 - inhalation - Acute toxicity, inhalation, hazard category 4

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

H360 May damage fertility or the unborn child.

H360FD May damage fertility. May damage the unborn child

H373 May cause damage to organs through prolonged or repeated exposure.