



MATERIAL SAFETY DATA SHEET

200 g/L Glufosinate-ammonium, SL

1. IDENTIFICATION OF SUBSTANCE AND COMPANY

COMMERCIAL NAME: Globus

COMMON NAME: 200 g/L Glufosinate-ammonium SL

CHEMICAL NAME: ammonium 4-[hydroxy(methyl)phosphinoyl]-DL-homoalaninate

SUPPLIER: Lier Chemical Co., Ltd

ADDRESS: Economic and Technical Development Zone, Mianyang, Sichuan , P.R.China.

EMERGENCY PHONE: +86-816-2845441

2. COMPOSITION AND INFORMATION ON INGREDIENTS:

| Component | CAS No. | Content |
|---|------------|------------|
| 1 Glufosinate-ammonium..... | 77182-82-2 | 200g/L min |
| 2 Poly (ethylene glycol) | 25322-68-3 | 100g/L max |
| 3 other ingredients including water | | To 1 liter |

3. HAZARDOUS IDENTIFICATIONS:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYES: May cause very slight transient (temporary) corneal injury.

SKIN: Prolong exposure may cause slight skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD50 for skin absorption in rats is greater than 4000 mg / kg.

INGESTION: Single dose oral toxicity is extremely low. The oral LD50 for rats is > 2000 mg/kg. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

INHALATION: Excessive vapor concentrations are attainable and could be hazardous on single exposure.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, effects have been reported on the following organs: liver and kidney.

Observations in animals include lethargy.

CANCER INFORMATION: For the components tested, did not cause cancer in laboratory animals.

REPRODUCTIVE EFFECTS: For the components tested, in animal studies, has been shown not to interfere with reproduction.

4. FIRST AID:

If Swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting. Drink two glasses of water. Never induce vomiting or give

anything by mouth to an unconscious person.

If Inhaled: Remove patient to fresh air. If not breathing, give mouth to mouth resuscitation and call a physician immediately.

If in Eyes: Flush with water for at least 15 minutes. Call a physician immediately.

If on Skin: Remove contaminated clothing and wash skin with soap and water.

If irritation persists, call a physician. Launder contaminated clothing before re-use.

Hazards: Ingestion may cause liver damage. Dangerous amounts can be absorbed through the skin. More severe effects if alcohol is consumed. Risk of bronchopneumonia in case of prolonged exposure. Poisoning affects the central nervous system.

Treatment: There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

5. FIRE FIGHTING MEASURES:

Extinguishing media: Water fog, fine water spray, foam, dry chemical, carbon dioxide.

Hazards from combustion products: In a fire, irritant and toxic fumes containing oxides of carbon, nitrogen, phosphorus and sulphur, and other toxic substances may be generated.

Precautions for fire fighters: Fire fighters should wear full protective gear, including self-contained breathing apparatus. Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later.

6. ACCIDENTAL RELEASE MEASURES:

Use appropriate protective equipment. Clear area of unnecessary personnel.

Spills may be slippery and should be cleaned up immediately.

Large spill: Dike and pump as much as possible to a salvage container. Absorb the remaining liquid and any small spills with clay granules, sand or other absorbent material and sweep to a waste container. Cover the spill area with water and absorb. Minimize runoff into waterways or drains.

7. HANDLING AND STORAGE:

Harmful - Keep out of reach of children.



Store in original container, tightly closed away from foodstuffs. Use spray solutions the same day.

Flammability: Not flammable under conditions of use. Not classified as a combustible liquid, as the boiling point (96°C) is less than the fire point ($> 96^{\circ}\text{C}$). The product does not sustain combustion.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

General Protection: Do not eat, drink or smoke when handling this product, wash your hands before eating, drinking, smoking or before touching anyone or anything.

Exposure Limit: $0.9\text{mg}/\text{cm}^3$. (Internal Bayer CropScience Occupational Exposure Standard)

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance : Blue to green liquid

Odour : Slight pungent odour

Specific Gravity : $1.08\text{g}/\text{cm}^3$ at 20°C

PH : 5~8 (10% solution at 20°C)

Vapour pressure: Low

Boiling Point: 97°C

Solubility: soluble in water

Minimum Ignition Energy: no data available

Compatibility: Compatible with diuron, simazine, MCPA and some other herbicides

10. STABILITY AND REACTIVITY:

Flash Point: Not applicable

Autoignition Temperature: Not applicable

Explosion Limit: Not explosive

Stability and Reactivity: Stable under normal conditions

Hazardous Polymerization: Not data available

Incompatibility: Compatible to almost all pesticides

Storage Stability: Stable for 3 years if stored in a cool, dark and dry place.

Chemical stability Stable under normal conditions of use.

Conditions to avoid: Avoid sources of ignition and extreme heat.

Incompatible materials Avoid contact with strong oxidizing agents, acids or bases.

Ammonia may be evolved in the presence of alkalis.

Hazardous decomposition products Ammonia. In a fire, oxides of carbon, nitrogen,

phosphorus and sulphur may be emitted.

11. TOXICOLOGICAL INFORMATION:

Oral: Acute oral LD₅₀ for rats > 2000mg/kg (both for male and female)

Dermal: Acute oral LD₅₀ for rats > 2000kg (both for male and female)

Skin and eye: may cause eye or skin irritant, Not a skin sensitiser (guinea pigs).

Inhalation: LC₅₀ (4 h) for rats >2.09 mg/l.

Mutagenic effect (Technical) : Glufosinate-ammonium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests

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

Reproductive Effect : 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.

Development 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.

12. ECOLOGICAL INFORMATION:

Birds: Dietary LC₅₀ (8 d) for Japanese quail >5000 mg/kg.

Fish: LC₅₀ (96 h) for rainbow trout 710, carp, bluegill sunfish, golden orfe >1000 mg/l.

Daphnia: LC₅₀ (48 h) 560–1000 mg/l.

Algae: LD₅₀ for *Scenedesmus subspicatus* ≥1000, *Selenastrum capricornutum* 37 mg/l.

Bees: Not hazardous to bees; LD₅₀ >100 µg/bee.

Worms: LD₅₀ for earthworms >1000 mg/kg soil.

Other beneficial spp. : Not toxic to beneficial arthropods.

13. DISPOSAL CONSIDERATIONS:

General Disposal Guidance: It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines

Container Disposal: Do not re-use empty containers. Follow advice on product label and/or leaflet.

14. TRANSPORT INFORMATION:

ADR Not dangerous goods

ADNR Not dangerous goods

| | |
|--------|---------------------|
| RID | Not dangerous goods |
| GGVE | Not dangerous goods |
| GGVS | Not dangerous goods |
| IMDG | Not dangerous goods |
| IATA_C | Not dangerous goods |
| IATA_P | Not dangerous goods |

15. REGULATORY INFORMATION:

Not applicable

16. OTHER INFORMATION:

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

MSDS Creation Date: 20/01/2014

Revision #5 Date: 21/02/2017

(Lier Chemical Co., Ltd)