

# Safety Data Sheet

Revision Date: 6/18/2019

## Section 1: Chemical Identification

### 1.1 Chemical Identification

**Product Name:** Phosphinothricin  
**Alternative Name:** Glufosinate-ammonium

**Catalog Number:** P-165

### 1.2 Relevant Uses and Uses Advised Against

**Recommended use:** An analogue of glutamate; acts as a competitive inhibitor of glutamine synthetase. This product is not for use in humans. It is for

### 1.3 Supplier Contact Information

**Distributed by:** Gold Biotechnology, Inc.  
1328 Ashby Rd.  
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**Fax:** (314) 890-0503  
**Email:** [contactgoldbio86@goldbio.com](mailto:contactgoldbio86@goldbio.com)

### 1.4 Emergency Contact Information

**Emergency Phone:** (800)248-7609 (Monday-Friday, 9:00 a.m. – 5:00 p.m. CST)

## Section 2: Hazardous Information

### 2.1 GHS Classification

Acute Toxicity, Oral (Category 4)  
Acute Toxicity, Inhalation (Category 4)  
Acute Toxicity, Dermal (Category 4)  
Reproductive Toxicity (Category 1B)  
Specific Target Organ Toxicity, Repeated exposure (Category 2)

### 2.2 GHS Label Elements, Including Precautionary statements



**DANGER!**

### 2.3 Hazard Statements

**H302:** Harmful if swallowed  
**H312:** Harmful in contact with skin  
**H332:** Harmful if inhaled

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**H360:** May damage fertility or the unborn child

**H373:** May cause damage to organs through prolonged or repeated exposure

## **2.4 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/fume/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+310+330:** IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician;  
Rinse mouth

**P302+352:** IF ON SKIN: Wash with soap and water

**P304+340:** IF INHALED: Remove victim to fresh air and keep at rest in a position  
comfortable for breathing

**P308+313:** IF exposed or concerned: Get medical advice/attention

**P312:** Call a POISON CENTER or doctor/physician if you feel unwell

**P363:** Wash contaminated clothing before reuse

**P405:** Store locked up

**P501:** Dispose of contents/container to an approved waste disposal plant

## **2.5 OSHA Hazards**

Toxic by inhalation. Harmful by ingestion.

## **2.8 HMIS Classification**

Health Hazard: 2

Chronic Health Hazard: \*

Flammability: 0

Physical Hazards: 0

## **2.9 NFPA Rating**

Health Hazard: 2

Fire: 0

Reactivity Hazard: 0

# **Section 3: Composition/Information on Ingredients**

## **3.1 Composition**

<b>Identity:</b>	Phosphinothricin
<b>IUPAC:</b>	2-amino-4-[hydroxy(methyl)phosphoryl]butanoic acid;azane
<b>Synonyms:</b>	Glufosinate-ammonium
<b>CAS Number:</b>	77182-82-2
<b>Molecular Formula:</b>	C <sub>5</sub> H <sub>15</sub> N <sub>2</sub> O <sub>4</sub> P
<b>Molecular Weight:</b>	198.16 g/mol

# **Section 4: First Aid Measures**

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#### **4.1 Detailed First Aid Measures**

<b>Inhalation:</b>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<b>Skin:</b>	Immediately wash skin copiously with soap and water. Take victim immediately to hospital. Consult a physician.
<b>Eye:</b>	Immediately rinse out with water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Consult a physician.
<b>Ingestion:</b>	Wash out mouth with water. Drink plenty of water. Consult a physician. Never give anything by mouth to an unconscious person.
<b>Notes to Physician:</b>	Treat symptomatically and supportively.

#### **4.2 Most Important Symptoms And Effects, Either Acute Or Delayed**

The most important known symptoms and effects are described in the labeling (see section 2). And /or in section 11.

#### **4.3 Indication of immediate medical attention and special treatment needed**

Not available

### **Section 5: Fire Fighting Measures**

#### **5.1 Conditions of flammability:**

Not flammable or combustible.

#### **5.2 Suitable extinguishing media:**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### **5.3 Specific hazards arising from the chemical**

During a fire, highly toxic gases may be generated by thermal decomposition or combustion – Carbon oxides, Nitrogen oxides (NOx), Oxides of phosphorus.

#### **5.4 Specific protective actions for fire-fighters:**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### **Section 6: Accidental Release Measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures:**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

#### **6.2 Environmental precautions:**

Do not let product enter drains.

#### **6.3 Methods and materials for containment and cleaning up:**

Soak up with absorbent material, discard.

### **Section 7: Handling and Storage**

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### **7.1 Precautions for safe handling:**

Always wear personal protective equipment (PPE, see section 8).

### **7.2 Conditions for safe storage, including and incompatibilities:**

Keep container tightly closed.

Store desiccated at -20°C.

## **Section 8: Exposure Controls / Personal Protection**

### **8.1 Control Parameters:**

Contains no substances with occupational exposure limit values.

### **8.2: Appropriate engineering controls:**

Contains no substances with occupational exposure limit values.

### **8.3 Personal Protective Equipment (PPE):**

**Eye/Face Protection:** Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin Protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique - without touching outer surface of glove - to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Other Protective Clothing or Equipment:** Wear appropriate protective clothing to prevent exposure.

## **Section 9: Physical and Chemical Properties**

### **9.1 General chemical and physical properties**

<b>Appearance:</b>	Off-white powder
<b>Odor:</b>	Not Available
<b>Odor Threshold:</b>	Not Available
<b>pH:</b>	Not Available

<b>Melting Point:</b>	215°C
<b>Freezing Point:</b>	Not Available
<b>Boiling Point/Range:</b>	Not Available
<b>Flash Point:</b>	>100°C
<b>Evaporation Rate:</b>	Not Available
<b>Lower Explosion Limit:</b>	Not Available
<b>Upper Explosion Limit:</b>	Not Available
<b>Vapor Pressure:</b>	Not Available
<b>Vapor Density:</b>	Not Available
<b>Relative Density:</b>	Not Available
<b>Solubility:</b>	Soluble in water
<b>Partition Coefficient n-octanol/water:</b>	Not Available
<b>Auto-Ignition Temperature:</b>	Not Available
<b>Decomposition Temperature:</b>	Not Available
<b>Viscosity:</b>	Not Available

## **Section 10: Stability and Reactivity Data**

### **10.1 Reactivity:**

Not available

### **10.2 Chemical Stability:**

Stable under recommended storage conditions.

### **10.3 Possibility of hazardous reactions:**

Not available.

### **10.4 Conditions to avoid:**

Incompatible materials.

### **10.5 Incompatible materials:**

Strong oxidizing agents.

### **10.6 Hazardous decomposition products:**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Oxides of phosphorus.

## **Section 11: Toxicological Information**

### **11.1 Toxicological effects**

#### **Acute toxicity:**

Phosphinothricin Oral: LD<sub>50</sub> (Rat)=1620 mg/kg

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		LD <sub>50</sub> (Mouse)=416 mg/kg
Phosphinothricin	Subcutaneous:	LD <sub>50</sub> (Rat)=61 mg/m3 LD <sub>50</sub> (Mouse)=88 mg/m3
Phosphinothricin	Inhalation:	LD <sub>50</sub> (Rat)=1260 mg/m3
Phosphinothricin	Skin:	LD <sub>50</sub> (Rat)>2000 mg/kg
Phosphinothricin	Intraperitoneal:	LD <sub>50</sub> (Mouse)=82 mg/kg LD <sub>50</sub> (Rat)=83 mg/kg

**Skin corrosion/irritation:**

May cause irritation.

**Respiratory or skin sensitization:**

Not available.

**Germ cell mutagenicity:**

Not available.

**Carcinogenicity:**

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:**

Presumed human reproductive toxicant  
Reproductive toxicity - Rat - Oral  
Maternal Effects: Other effects.

**STOT-single exposure:**

Not available.

**STOT-repeated exposure:**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard:**

Not available.

**Likely routes of exposure:**

Respiratory organs, mouth, skin, and eyes.

**Symptoms of exposure:**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## **Section 12: Ecological Information**

### **12.1 Toxicity:**

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 710 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates  
EC50 - Daphnia magna (Water flea) - 560 mg/l - 48 h

### **12.2 Persistence and degradability:**

Not available.

### **12.3 Bioaccumulative potential:**

Not available.

### **12.4 Mobility in soil:**

Not available.

### **12.5 Other adverse effects:**

None.

## **Section 13 Disposal Considerations**

Dispose of product in accordance with local rules and regulations.

## **Section 14: Transport Information**

### **14.1 US Department of Transportation (DOT)**

This material is considered to be non-hazardous for transport.

### **14.2 International Maritime Dangerous Goods (IMDG):**

This material is considered to be non-hazardous for transport.

### **14.2 International Air Transportation Association (IATA)**

This material is considered to be non-hazardous for transport.

## **Section 15: Regulatory Information**

### **SARA 302 Components:**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### **SARA 313 Components:**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### **SARA 311/312 Hazards:**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components:**

Phosphinothricin

CAS - No.

77182-82-2

**Pennsylvania Right To Know Components:**

Phosphinothricin

CAS - No.

77182-82-2

**New Jersey Right To Know Components:**

Phosphinothricin

CAS - No.

77182-82-2

**California Prop. 65 Components:**

This product does not contain any chemical known to the State of California to cause cancer, birth, or any other reproductive defects.

## **Section 16: Other Information**

While Gold Biotechnology, Inc. believes the information contained herein to be true and accurate, it has relied on information provided by others. Gold Biotechnology, INC. makes no warranties, express or implied, as to the accuracy or adequacy of the information contained herein or with respect to the results to be obtained from the use of the product. Gold Biotechnology, Inc. disclaims all liability with respect to the use of this product, including without limitation, liability for injury to the user or third-party persons.

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