

Applicant: Zhaocounty Granray Bioproducts Co., Ltd.
Address: Biotechnology Industrial Area, Nanbaishe Town, Zhaoxian, Hebei, China

Sample information:

Sample name: Glycine

Model: /

Sample received date: November 23, 2016

Testing period: From November 23, 2016 to November 25, 2016

Test Requested: As specified by the client, to edit Material Safety Data Sheet (MSDS) for the submitted sample.

Shanghai Changyin Testing Technology Co.,Ltd

Approved by: **Shanghai Changyin Testing Technology Co.,Ltd**Room 1018, V6 Times Business Building, No.16, Xinyuan Road, Anting Town, Jiading District, Shanghai
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Material Safety Data Sheet (MSDS)

In accordance with GHS Rev. 6 and The EU CLP REGULATION (EC) No 1272/2008

Section 1 - Chemical Product and Company Identification

1.1 Product Identification:

Product Name: Glycine
Product Model: /

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

Identified uses: For the pharmaceutical industry, biochemical tests and organic synthesis; For biochemical reagents, medicine, feed and food additives; For non-toxic decarbonizing agent in nitrogen fertilizer industry
Use advised against: No data available.

1.3 Details of the Manufacture or supplier

Manufacture: Zhaocounty Granray Bioproducts Co., Ltd.
Address: Biotechnology Industrial Area, Nanbaishe Town, Zhaoxian, Hebei, China
Telephone: 86-0311-67300879
Fax: 86-0311-67300879
Email: 2308283411@qq.com

1.4 Emergency telephone number

Emergency Telephone: 86-0311-67300879

Section 2 - Hazards Identification

2.1 Classification of the substance or mixture

This product is not classified as dangerous according to the GHS (The Globally Harmonized System of Classification and Labelling of Chemicals).

2.2 GHS Label elements, including precautionary statements

Pictogram(s): No pictogram is used.
Signal Word: No signal word is used.
Hazard Statement: No hazard statement.

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Precautionary statements: No precautionary statement.

2.3 Description of any hazards not otherwise classified

No additional information available.

Section 3 - Composition/Information on Ingredient

Substance () Preparation (✓) Article ()

Product name: Glycine

Synonyms: Aminoethanoic acid; Aminoacetic acid; Glycocol

Molecular formula: $C_2H_5NO_2$

Molecular weight: 75.07 g / mol

Chemical name	CAS No.	EINECS No.	Content (%)
Glycine	56-40-6	200-272-2	≥99%

Abbreviation: CAS No. is Chemical Abstract Service Registry Number.

Section 4 - First Aid Measures

4.1 Description of first aid measures:

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

Skin Contact: Wash off with soap and plenty of water.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Dust in throat and nasal passages should clear spontaneously. Contact a physician if discomfort.

Ingestion: Wash out mouth with water. Never give anything by mouth to an unconscious person. If feel discomfort or largely ingested, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Section 5 -Extinguishing media

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5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides.

5.3 Advice for firefighters

Evacuate personnel to safe areas. As in any fire, Wear self-contained breathing apparatus and full protective gear for firefighting.

5.4 Further information

No data available.

Section 6 - Accidental Release Measures

For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations.

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate area. Ventilate area. Avoid dust generation. Avoid inhaling dust. Use suitable personal protective equipment.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up:

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. For disposal see section 13.

Section 7 - Handling and Storage

7.1 Precautions for safe handling:

Provide appropriate exhaust ventilation at places where dust is formed.

Wear suitable personal protective equipment in section 8.

Avoid formation of dust and aerosols. Avoid inhaling dust. Avoid contact with skin and eyes.

Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Do not store together with strong oxidizing agent. Keep away from fire and heat.

Section 8 - Exposure Controls, Personal Protection

8.1 Exposure Limits: Not established by US OSHA and ACGIH.

8.2 Exposure controls

Engineering Control: General industrial hygiene practice. Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment:

Respiratory Protection: Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eyes Protection: Not required under normal usage. Use face shield and safety glasses if in-eye risk exists. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body Protection: In production, use normal work suit is enough.

Hands Protection: Suggest wear suitable protective gloves to avoid skin exposure.

Other Protections: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	White crystalline powder
Odor	Odorless
pH (50g/L solution, 25℃)	5.8-6.4
Melting point/freezing point	About 248℃ (Decomposition)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability	Not flammable.
Upper explosive limit %(V/V)	Not available.
Lower explosive limit %(V/V)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.

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Relative density	1.16 g/cm ³
Solubility(ies)	Soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

Section 10 - Stability and Reactivity

10.1 Stability: Stable under normal storage temperature and pressure.

10.2 Conditions to Avoid: Extremes of temperature, flames and mars.

10.3 Incompatible materials: Strong oxidizing agents.

10.4 Hazardous Decomposition Products: Other decomposition products- no data available. In the event of fire:see section 5.

10.5 Possibility of hazardous reactions: None hazardous reactions known under normal condition.

Section 11 - Toxicological Information

Acute Toxicity:

Ingredient

LD50-Oral-Rat

Glycine

7930mg/kg

Skin Corrosion/Irritation:

No known irritating effect.

Serious Eye Damage/Eye Irritation:

No known irritating effect.

Respiratory or Skin Sensitization

No sensitizing effects known.

Germ Cell Mutagenicity

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

Carcinogenicity:

None of the components of this product is listed as a carcinogen by IARC, NTP, US OSHA or the European Directive (67/548/EEC).

Reproductive Toxicity:

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

Specific Target Organ Toxicity - Single

No known human health effects upon single exposure.

Exposure (Globally Harmonized System):

Specific Target Organ Toxicity - Repeated

No known human health effects upon repeated exposure.

Exposure (Globally Harmonized System):

Aspiration Hazard:

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

Potential Health Effects:

Inhalation:

Inhaling dust may cause respiratory irritation..

Skin Contact:

No irritating effect except possible mechanical stimulation.

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Eye Contact:

May cause slight eye irritation if dust in-eye.

Ingestion:

No significant effect or harm if Ingestion of small amount. May be harmful if largely ingested.

Section 12 - Ecological Information**12.1 Toxicity**

No data available

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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No known ecological damage caused by this product.

Section 13 - Disposal Considerations**Waste treatment methods****Product**

Non hazardous waste. Recycle if possible. Offer surplus and non-recyclable products to a licensed disposal company. Observe according to the national and local related regulations.

Contaminated packaging

Dispose of as unused product after empty.

Section 14 - Transport Information

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14.1 UN Number:

ADR/RID, IMDG, IATA Not regulated as dangerous goods.

14.2 UN proper shipping name:

ADR/RID, IMDG, IATA Not dangerous goods

14.3 Transport hazard class(es):

ADR/RID, IMDG, IATA Not regulated as dangerous goods.

14.4 Packing group:

ADR/RID, IMDG, IATA Not regulated as dangerous goods.

14.5 Environmental hazards: No.

14.6 Special precautions for user:

No information available.

Section 15 - Regulatory Information

EU Regulations

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

Not classified

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Not classified.

US Regulations

OSHA:OSHA Hazard Communication Standard Status: This product is not considered to be a hazardous substance under OSHA ' s Federal Hazard Communication Standard 29 CFR 1910.1200.

USA CERCLA:

CERCLA Reportable Quantity (RQ): This product has not been assigned a reportable quantity.

USA EPCRA(Emergency Planning and Community Right-to-Know Act):

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

New Jersey Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

USA SARA

SARA 302 Components

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

SARA 313 Components (Specific toxic chemical listings)

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.

International Chemical Substances list:

CAS No.	EINEC	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS
56-40-6	listed	listed	listed	listed	listed	listed	listed	listed

Note:

EINECS: European Inventory of Existing Commercial Chemical Substances

TSCA: TSCA Chemical Substance Inventory

DSL: Canada Domestic Substance List

IECSC: Inventory of Existing Chemical Substances in China

NZIoC: New Zealand Inventory of Chemicals

PICCS: Philippines Inventory of Chemicals and Chemical Substances

KECI: Korea Existing Chemicals Inventory

AICS: Australian Inventory of Chemical Substances

Section 16 - Additional Information

Abbreviations:

- pH- Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline
- OSHA- Occupational Safety and Health Administration
- NTP- National Toxicology Program
- IARC- International Agency for Research on Cancer
- CAS#- Chemical Abstract Service number - used to uniquely identify chemical compounds
- ACGIH- The American Conference of Governmental Industrial Hygienists
- ADR- Agreement on Dangerous Goods by Road
- IATA - International Air Transport Association
- IMDG- International Maritime Dangerous Goods

Further Information:

-This safety data sheet was prepared in accordance with UN GHS Rev.6, The EU CLP REGULATION (EC) No 1272/2008, and ANSI Z400.1.

-The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for

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the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Department Issuing MSDS: Zhaocounty Granray Bioproducts Co., Ltd.

Issue Date: September 18, 2016