



## Section 1 - Chemical Product and Company Identification

**1.1 MSDS Name:** Zinc Gluconate USP

**1.2 Product Code:** ZGLUS97

**1.3 Relevant identified uses of the substance or mixture and uses advised against:**

Food Additives in Nutrients Food industry: supplement

**1.4 Company Identification:**

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## Section 2 – Hazards Identification

**2.1. Classification of the substance or mixture:**

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Eye Dam. 1 (80.2%)

Aquatic Acute 1 (72.2%)

Aquatic Chronic 1 (73.4%)

**2.2 Signal Word:**

Danger

**2.3 Hazard Statement:**

H318 Causes serious eye damage

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

**2.4 Precautionary Statements:**

**Prevention**

- P264 + P265: Wash hands thoroughly after handling. Avoid contact with eyes, skin, and clothing.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

- P305 + P354 + P338: IF IN EYES: Immediately rinse with water for several minutes. Remove



## Section 2 – Hazards Identification

contact lenses, if present and easy to do. Continue rinsing.

- P317: Get medical help if you feel unwell or if exposed to hazardous substances.

### Protection

- P391: Collect spillage.

### Disposal

- P501: Dispose of contents/container in accordance with local, regional, national, and international regulations.

### 2.5 Potential Acute Health Effects:

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

### 2.6 Potential Chronic Health Effects:

#### 2.6.1 Carcinogenic effects

Not available.

#### 2.6.2 Mutagenic effects

Not available.

#### 2.6.3 Teratogenic effects

Not available.

#### 2.6.3 Developmental effect

Not available.

2.6.4 Repeated or prolonged exposure is not known to aggravate medical condition. Classification of the substance or mixture: REGULATION (EC) No.- 1272/2008

Other hazards Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII.

### 2.7 Pictogram:



Corrosive



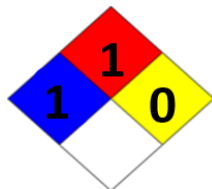
Environmental Hazard





## Section 2 – Hazards Identification

### 2.8 NFPA SCALE:



NFPA SCALE (0-4)

### 2.9 HMIS RATINGS:

Health	1
Flammability	1
Physical Hazard	0
Personal protection	E

HMIS RATINGS (0-4)

## Section 3 - Composition / Information on Ingredients

**3.1 Chemical Name:** Zinc Gluconate

**3.2 Synonym:** Bis(D-gluconato-O(sup 1),O(sup 2))zinc, trihydrate Rubozine Zinc, bis(D-gluconato-O(sup 1),O(sup 2))- (9CI), trihydrate

**3.3 CAS Number:** 4468-02-4

**3.4 EC number:** 224-736-9

**3.5 Molecular Formula:** C<sub>12</sub>H<sub>22</sub>O<sub>14</sub>Zn.xH<sub>2</sub>O

**3.6 Molecular Weight:** 455.7 + xH<sub>2</sub>O g/mol

## Section 4 - First Aid Measures

### 4.1 Description of first aid measures:

4.1.1 Inhalation:





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## Section 4 - First Aid Measures

Move exposed person to fresh air. If not breathing, seek immediate medical attention. If breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel and seek medical attention.

### 4.1.2 Ingestion:

Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention.

### 4.1.3 Skin Contact:

Remove contaminated clothing and shoes and immediately flush skin with plenty of water for at least 15 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse. If irritation persists, seek medical attention.

### 4.1.4 Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.

## 4.2 Most important symptoms and effects, both acute and delayed:

### 4.2.1 Symptoms/injuries after inhalation

Metal fume fever.

### 4.2.2 Symptoms/injuries after ingestion

Diarrhoea. Nausea. Vomiting.

## 4.3 Indication of any immediate medical attention and special treatment needed:

No further relevant information available

## Section 5 - Fire-Fighting Measures

### 5.1 Suitable Extinguishing Media:

Dry powder. Carbon dioxide. Foam. Water fog. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### 5.1.1 Large Fire

CAUTION: Use of water spray when fighting fire may be inefficient.

#### 5.1.2 Unsuitable extinguishing media

Do not scatter spilled material with high pressure water streams.

### 5.2 Flammability of the Product:

May be combustible at high temperature.

### 5.3 Auto-Ignition Temperature:

>155°C (311°F)

### 5.4 Flash Points:





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## Section 5 - Fire-Fighting Measures

Not available.

### 5.5 Flammable Limits:

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

### 5.6 Products of Combustion:

These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...). Some metallic oxides.

### 5.7 Fire Hazards in Presence of Various Substances:

Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

### 5.8 Fire Fighting Media and Instructions:

#### 5.8.1 Small fire

Use DRY chemical powder.

#### 5.8.2 Large fire:

Use water spray, fog or foam. Do not use water jet. Use suitable Extinguishing media (Like, Water, Carbon Dioxide (CO<sub>2</sub>), Foam, Dry powder).

### 5.9 Special Remarks on Fire Hazards:

Fire is possible at elevated temperatures.

### 5.10 Special Remarks on Explosion Hazards:

Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

### 5.11 Special protective equipment for fire-fighters:

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## Section 6 - Accidental Release Measures

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

#### 6.1.1 Personal Precautions

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

#### 6.1.2 For non-emergency personnel:

Leave the area surrounding the spill or release. Do not smoke. Wear mask, gloves and protective clothing.

#### 6.1.3 For emergency responders:

Wear mask, gloves and protective clothing. Eliminate all unguarded flames and possible sources of ignition. No smoking. Provision of sufficient ventilation. Evacuate the danger area and, in case, consult an expert





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## Section 6 - Accidental Release Measures

### 6.2 Environmental Precautions:

Should not be released into the environment. Do not allow material to contaminate groundwater system. Do not flush into surface water or sanitary sewer system

### 6.3 Methods and material for containment and cleaning up:

#### 6.3.1 Spill control and recovery:

Wear appropriate personal protective equipment as specified in Section 8. Clean up spills in a manner that does not disperse dust into the air. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container

#### 6.3.2 Disposal

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## Section 7 - Handling and Storage

### 7.1 Precautions for safe handling:

#### 7.1.1 Handling

Avoid contact with eyes. Avoid breathing dust. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.

#### 7.1.2 Hygiene measures

Do not eat, drink or smoke when using this product.

### 7.2 Conditions for safe storage, including any incompatibilities:

Store in accordance with local regulations. Store in original container, protected from direct sunlight. Keep container tightly closed and sealed until ready for use.

#### 7.2.1 Storage temperature

Store at a dry place at room temperature (+15°C to +25°C).

#### 7.2.2 Storage class: TRHS 510: 11 Combustible solids

#### 7.2.3 Packaging materials

plastics. polyethylene.

## Section 8 - Exposure Controls / Personal Protection





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### **8.1 Control parameters:**

#### **8.1.1 Exposure Limits**

The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

### **8.2 Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below Recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### **8.3 Individual protection measures, such as personal protective equipment:**

Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

#### **8.3.1 Eye/face protection**

Use Eye/face protection

Use safety glasses for eye/face protection.

#### **8.3.2 Hand Protection**

##### **Full contact:**

Glove material: Nitrile rubber

Glove thickness: 0.11 mm

Break through time: > 480

##### **Splash contact**

Glove material: Nitrile rubber

Glove thickness: 0.11 mm

Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests according to EN374 with samples of the recommended glove types.

#### **8.3.3 Respiratory protection**

Required when dusts are generated.

### **8.4 Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### **8.5 Environmental exposure controls:**

Do not empty into drains.





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## Section 9 - Physical and Chemical Properties

<b>Physical State:</b>	Solid
<b>Appearance:</b>	White or practically white powder or granules
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No information available
<b>pH :</b>	5.5 – 7.5
<b>Melting Point/Range :</b>	172-175°C
<b>Boiling Point/Range:</b>	319°C
<b>Thermal Decomposition Temperature:</b>	155°C
<b>Flash Point:</b>	> 93.3 °C / 199.9 °F
<b>Evaporation Rate:</b>	Not applicable
<b>Flammability (solid,gas):</b>	No information available
<b>Flammability or explosive limits:</b>	No data available
<b>Vapor Pressure:</b>	No information available
<b>Vapor Density:</b>	Not applicable
<b>Density:</b>	1.44 (at 20°C)
<b>Specific Gravity:</b>	No information available
<b>Solubility:</b>	Soluble in cold water. Solubility in Water: 100 g/L @ 20 deg. C
<b>Partition coefficient:</b>	n-octanol/water 7.41 at 20°C
<b>Autoignition Temperature:</b>	> 155 °C / 311 °F
<b>Viscosity:</b>	Not applicable

## Section 10 - Stability and Reactivity

### 10.1 Reactivity:

Thermal decomposition generates toxic vapors. Carbon oxides (CO, CO<sub>2</sub>). Zinc oxide.

### 10.2 Stability:

The product is stable at normal conditions.

### 10.3 Instability Temperature:

Not available.

### 10.4 Conditions of Instability:

Excess heat, excess dust generation, incompatible materials

### 10.5 Hazardous Decomposition Products:

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Zinc oxide

### 10.6 Incompatibility with various substances:

Reactive with acids.







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**10.7 Corrosivity:**

Not available.

**10.8 Special Remarks on reactivity:**

Incompatible with strong mineral acids, and strong organic acids.

**10.9 Special Remarks on**

10.9.1 Corrosivity: Not available.

10.9.2 Polymerization: Will not occur

## Section 11 - Toxicological Information

**11.1 RTECS Reference:**

No data available

**11.2 Routes of exposure:**

**11.2.1 Inhalation**

Specific test data for the substance or mixture is not available.

**11.2.2 Eye contact**

Specific test data for the substance or mixture is not available.

**11.2.3 Skin contact**

Specific test data for the substance or mixture is not available.

**11.2.4 Ingestion**

Specific test data for the substance or mixture is not available

**11.3 Target Organs:**

No data available

**11.4 Toxicity Data:**

11.4.1 Acute oral toxicity (LD50): 1290 mg/kg [Mouse].

LD50 oral rat > 5000 mg/kg (OECD Method 401)

11.4.2 Inhalative LC50 6,686 mg/m<sup>3</sup> (rat)

**11.5 Delayed and immediate effects as well as chronic effects from short and long-term exposure:**

11.5.1 Skin corrosion/irritation No information available.

11.5.2 Serious eye damage/eye irritation No information available.

11.5.3 Respiratory or skin sensitization No information available.

**11.6 Germ cell mutagenicity:**

No information available.

**11.7 Reproductive toxicity:**

No information available.

**11.8 STOT - single exposure:**

No information available.

**11.9 STOT - repeated exposure:**





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## Section 11 - Toxicological Information

No information available.

**11.10 Aspiration hazard:**

No information available.

**11.11 Other adverse effects:**

No information available.

**11.12 Interactive effects:**

No information available.

**11.13 Skin corrosion/irritation:**

No data available

**11.14 Serious eye damage/irritation:**

No data available

**11.15 Carcinogenicity:**

No data available

**11.16 Toxicity:**

Aquatic toxicity: EC50 0.26 mg/L (Algae) 22.8 mg/L /48h (invertebrates) 5.2 mg/L (Microorganism)

## Section 12 - Ecological Information

**12.1 Ecotoxicity:**

No data available

**12.2 BOD5 and COD:**

No data available

**12.3 Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise

**12.4 Toxicity of the Products of Biodegradation:**

The product itself and its products of degradation are not toxic.

**12.5 Special Remarks on the Products of Biodegradation:**

No data available

**12.6 Acute oral toxicity:**

LD50 Rat: > 5,000 mg/kg (External MSDS) Symptoms: After uptake of large quantities; Nausea, Vomiting, Diarrhoea.

**12.7 Ecology - general:**

Toxic to aquatic organisms. Dangerous to the aquatic environment, short-term (acute): Very toxic to aquatic organisms. Dangerous to the aquatic environment, long-term (chronic): Very toxic to aquatic organisms with effects of long life. LC50 fish: 11,12 mg/l/96h (Oncorhynchus





## Section 12 - Ecological Information

mykiss (Rainbow trout)) (OECD method 203). EC50 Daphnia: 22,8 mg/l/48 h (Daphnia magna)(OECD Method 202). CrE50 (algae): 0,26 mg/l/72 h (Pseudokirchneriella subcapitata)(OECD Method 201).

### 12.8 Persistence and degradability:

Not determined.

### 12.9 Bioaccumulative potential:

Not determined.

### 12.10 Mobility in soil:

Not determined.

### 12.11 Results of PBT and vPvB assessment:

Not determined.

### 12.12 Endocrine disrupting properties:

Not determined.

### 12.13 Water hazard class 2 (German Regulation) (Self-assessment):

Hazardous for water. Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into.

### 12.14 Other adverse effects:

No adverse effects.

## Section 13 - Disposal Considerations

### Disposal methods:

Refer to local government authority for disposal recommendation.

## Section 14 - Transport Information

**DOT Classification** : Not a DOT controlled material  
**Air transport Goods** : Nonhazardous/non dangerous as per IATA DGR.  
**Special Provision for Transport** : Not applicable  
**IATA Specification** : Non-dangerous, non-hazardous

### DOT (Pictograms)

AS PER IATA REGULATION SAFE FOR CARRAGE, NON-HAZARDOUS AND NON-RESTRICTED.  
NO SPECIAL LABELLING OR TRANSPORT MEASURE HAVE BEEN IDENTIFIED.

THIS IS NOT REGULATED AS PER IATA REGULATION





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## Section 15 - Regulatory Information

**Pennsylvania RTK:** Zinc gluconate (listed as Zinc/Zinc compounds) Federal and State

**Michigan critical material:** Zinc gluconate (listed as Zinc/Zinc compounds) Regulations

**New Jersey:** Zinc gluconate (listed as Zinc/Zinc compounds)  
New Jersey spill list: Zinc gluconate (listed as Zinc/Zinc compounds)

**California Director's List of Hazardous Substances:** Zinc gluconate (listed as Zinc/Zinc compounds)

SARA 313 toxic chemical notification and release reporting:

Zinc gluconate (listed as Zinc/Zinc compounds) California California prop. 65: This product contains the following ingredients for which the State of California has Proposition 65 found to cause cancer which would require a warning under the statute: No products were found.

Warnings

**California prop. 65:** This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations For CAS no. 4468-02-4 (anhydrous form):

**EINECS:** This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 224-736-9).

**Canada:** Listed on Canadian Domestic Substance List (DSL).

**China:** Listed on National Inventory.

**Japan:** Listed on National Inventory (ENCS).

**Korea:** Listed on National Inventory (KECI).

**Philippines:** Listed on National Inventory (PICCS).

**Australia:** Listed on AICS.

WHMIS (Canada) Not controlled under WHMIS (Canada).

Other Classifications

DSCL (EEC) R22- Harmful if swallowed. S46- If swallowed, seek medical advice

immediately and show this container or label.

Health Hazard

HMIS (U.S.A.) 1 National Fire Protection

1 Flammability

1 Association (U.S.A.)

Fire Hazard





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## Section 15 - Regulatory Information

1 0 Reactivity  
Health  
Reactivity  
0  
Specific hazard  
Personal Protection  
E  
WHMIS (Canada)  
(Pictograms)  
DSCG (Europe)  
(Pictograms)  
Zinc gluconate  
TDG (Canada)  
(Pictograms)  
ADR (Europe)  
(Pictograms)  
Protective Equipment  
Gloves.  
Lab coat.  
Dust respirator. Be sure to use an approved/certified  
respirator.

## Section 16 - Other Information

**Disclaimer:** This material safety data sheet is provided as an information resource only.

WEST BENGAL CHEMICAL INDUSTRIES LIMITED believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.

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**Revision No. : 04**

