# Z1077, Zinc Gluconate, USP

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<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSAY (ANHYDROUS BASIS)</td>
<td>97.0</td>
</tr>
<tr>
<td></td>
<td>102.0 %</td>
</tr>
<tr>
<td>pH OF A 1 IN 100 SOLUTION</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>WATER DETERMINATION</td>
<td></td>
</tr>
<tr>
<td>CHLORIDE</td>
<td>0.05 %</td>
</tr>
<tr>
<td>SULFATE</td>
<td>0.05 %</td>
</tr>
<tr>
<td>ARSENIC</td>
<td>3 ppm</td>
</tr>
<tr>
<td>REDUCING SUBSTANCES</td>
<td>1.0 %</td>
</tr>
<tr>
<td>CADMIUM</td>
<td>5 ppm</td>
</tr>
<tr>
<td>LEAD</td>
<td>10 ppm</td>
</tr>
<tr>
<td>ELEMENTAL IMPURITIES</td>
<td>AS REPORTED</td>
</tr>
<tr>
<td>IDENTIFICATION (A)</td>
<td>POSITIVE FOR ZINC</td>
</tr>
<tr>
<td>IDENTIFICATION (B)</td>
<td>Rf VALUE MATCHES STANDARD</td>
</tr>
<tr>
<td>CERTIFIED KOSHER</td>
<td></td>
</tr>
<tr>
<td>CERTIFIED HALAL</td>
<td></td>
</tr>
<tr>
<td>APPEARANCE</td>
<td></td>
</tr>
<tr>
<td>EXPIRATION DATE</td>
<td></td>
</tr>
<tr>
<td>DATE OF MANUFACTURE</td>
<td></td>
</tr>
<tr>
<td>RESIDUAL SOLVENTS</td>
<td>AS REPORTED</td>
</tr>
<tr>
<td>MONOGRAPH EDITION</td>
<td></td>
</tr>
</tbody>
</table>
## Certificate Of Analysis

**Item Number** | Z1077  
**Lot Number** | ILK0831  
**Item** | Zinc Gluconate, USP  
**CAS Number** | 4468-02-4  
**Molecular Formula** | C\(_{12}\)H\(_{22}\)O\(_{14}\)Zn  
**Molecular Weight** | 455.67

<table>
<thead>
<tr>
<th><strong>TEST</strong></th>
<th><strong>SPECIFICATION</strong></th>
<th><strong>RESULT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSAY (ANHYDROUS BASIS)</strong></td>
<td>97.0</td>
<td>102.0 %</td>
</tr>
<tr>
<td><strong>pH OF A 1 IN 100 SOLUTION</strong></td>
<td>5.5</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>WATER DETERMINATION</strong></td>
<td>11.6 %</td>
<td>7.78 %</td>
</tr>
<tr>
<td><strong>CHLORIDE</strong></td>
<td>0.05 %</td>
<td>&lt;0.05 %</td>
</tr>
<tr>
<td><strong>SULFATE</strong></td>
<td>0.05 %</td>
<td>&lt;0.05 %</td>
</tr>
<tr>
<td><strong>ARSENIC</strong></td>
<td>3 ppm</td>
<td>&lt;3 ppm</td>
</tr>
<tr>
<td><strong>REDUCING SUBSTANCES</strong></td>
<td>1.0 %</td>
<td>0.18 %</td>
</tr>
<tr>
<td><strong>CADMIUM</strong></td>
<td>5 ppm</td>
<td>0.64 ppm</td>
</tr>
<tr>
<td><strong>LEAD</strong></td>
<td>10 ppm</td>
<td>1.16 ppm</td>
</tr>
</tbody>
</table>

**ELEMENTAL IMPURITIES**  
**IDENTIFICATION (A)** | POSITIVE FOR ZINC | POSITIVE FOR ZINC |
**IDENTIFICATION (B)** | Rf VALUE MATCHES STANDARD | Rf VALUE MATCHES STANDARD |

**CERTIFIED KOSHER** | CERTIFIED KOSHER |
**CERTIFIED HALAL** | CERTIFIED HALAL |

**APPEARANCE** | WHITE POWDER |
**EXPIRATION DATE** | 31-JUL-2027 |
**DATE OF MANUFACTURE** | 01-JUL-2022 |
**RESIDUAL SOLVENTS** | AS REPORTED | NO RESIDUAL SOLVENTS USED |

**MONOGRAPH EDITION** | (USP) 2022 |
All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.

Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.

The Elemental Impurities standards implemented by USP and other Pharmaceutical Compendia reflect a growing understanding of the toxicology of trace levels of elemental impurities that can remain in drug substances originating from either raw materials or manufacturing processes. Identifying and quantifying impurities can be critical to predicting the best possible patient outcomes. Elemental Impurities has been a requirement of all products meeting USP/NF, EP and BP monographs since January 1, 2018. More information can be found in USP sections <232> Elemental Impurities – Limits and <233> Elemental Impurities – Procedures. Data for drug substances furnished by Spectrum Chemical Mfg. Corp can be used to ensure that patient daily exposures by oral administration to the selected elements are not exceeded in the formulation of pharmaceutical products.
1. Identification

Product identifier

Product Name  ZINC GLUCONATE, USP

Other means of identification

Product Code(s)  Z1077

Synonyms  None

Recommended use of the chemical and restrictions on use

Recommended use  No information available

Restrictions on use  No information available

Details of the supplier of the safety data sheet

Supplier Address  Spectrum Chemical Mfg. Corp.
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000

Emergency telephone number

Emergency Telephone  Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Hazard statements

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance  Granular Powder  Physical state  Solid  Odor  Odorless
Other information
No information available.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc Gluconate</td>
<td>4468-02-4</td>
<td>100</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

**Inhalation**
Remove to fresh air.

**Eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

**Skin contact**
Wash skin with soap and water.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

**Symptoms**
No information available.

Indication of any immediate medical attention and special treatment needed

**Note to physicians**
Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

Unsuitable extinguishing media
Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical
No information available.

Hazardous combustion products
Carbon dioxide (CO2). Hydrogen chloride.

Explosion data

**Sensitivity to mechanical impact**
one.

**Sensitivity to static discharge**
one.

Special protective equipment for fire-fighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures
Personal precautions, protective equipment and emergency procedures

Personal precautions
Ensure adequate ventilation.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling
Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Storage Conditions
Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

Control parameters

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.

Appropriate engineering controls

Engineering controls
Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection
No special protective equipment required.

Skin and body protection
No special protective equipment required.

Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state
Solid

Appearance
Granular Powder
Color: white; beige
Odor: Odorless
Odor threshold: No information available

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks + Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5</td>
<td>None known</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 93.3 °C / 199.9 °F</td>
<td>None known</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td>None known</td>
</tr>
<tr>
<td>Upper flammability or explosive limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability or explosive limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor density</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Relative density</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Soluble in water</td>
<td>None known</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>&gt; 155 °C / 311 °F</td>
<td>None known</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>155 - °C / 311 °F</td>
<td>None known</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>no data available</td>
<td>None known</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
</tbody>
</table>

Other information
- Explosive properties: No information available
- Oxidizing properties: No information available
- Softening point: No information available
- Molecular weight: 455.68 + xH2O
- VOC Content (%): No information available
- Liquid Density: No information available
- Bulk density: No information available

10. Stability and reactivity

Reactivity: No information available.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: None under normal processing.
Conditions to avoid: None known based on information supplied.
Incompatible materials: None known based on information supplied.
Hazardous decomposition products: None known based on information supplied.

11. Toxicological information

Information on likely routes of exposure

- Inhalation: Specific test data for the substance or mixture is not available.
- Eye contact: Specific test data for the substance or mixture is not available.
- Skin contact: Specific test data for the substance or mixture is not available.
- Ingestion: Specific test data for the substance or mixture is not available.
Symptoms related to the physical, chemical and toxicological characteristics

Symptoms
No information available.

Acute toxicity
Numerical measures of toxicity

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc Gluconate</td>
<td>&gt; 5000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4468-02-4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Skin corrosion/irritation
No information available.

Serious eye damage/eye irritation
No information available.

Respiratory or skin sensitization
No information available.

Germ cell mutagenicity
No information available.

Reproductive toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Aspiration hazard
No information available.

Other adverse effects
No information available.

Interactive effects
No information available.

12. Ecological information

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Persistence and degradability
No information available.

Bioaccumulation
Inherently biodegradable.

Other adverse effects
No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products
Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging
Do not reuse empty containers.

14. Transport information

DOT
not regulated

TDG
not regulated

MEX
not regulated
ICAO (air) not regulated
IATA not regulated
IMDG not regulated
RID not regulated
ADR not regulated
ADN not regulated

15. Regulatory information

International Inventories

TSCA Complies

DSL/NDSL Complies
EINECS/ELINCS Complies
ENCS This product complies with ENCS:
IECSC This product complies with China:
KECL Complies
PICCS Does not Comply
AICS All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**
This product does not contain any substances regulated under applicable state right-to-know regulations

**U.S. EPA Label Information**
EPA Pesticide Registration Number  Not applicable

### 16. Other information

**NFPA**
- Health hazards  0
- Flammability  2
- Instability  0
- Physical and chemical properties
- **HMIS**
  - Health hazards  0
  - Flammability  2
  - Physical hazards  0
  - Personal protection  X

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Legend**  Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
- TWA  TWA (time-weighted average)
- STEL  STEL (Short Term Exposure Limit)
- Ceiling  Maximum limit value

**Key literature references and sources for data used to compile the SDS**
- Agency for Toxic Substances and Disease Registry (ATSDR)
- U.S. Environmental Protection Agency ChemView Database
- European Food Safety Authority (EFSA)
- EPA (Environmental Protection Agency)
- Acute Exposure Guideline Level(s) (AEGL(s))
- U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
- U.S. Environmental Protection Agency High Production Volume Chemicals
- Food Research Journal
- Hazardous Substance Database
- International Uniform Chemical Information Database (IUCLID)
- Japan GHS Classification
- Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
- NIOSH (National Institute for Occupational Safety and Health)
- National Library of Medicine's ChemID Plus (NLM CIP)
- National Library of Medicine's PubMed database (NLM PUBMED)
- National Toxicology Program (NTP)
- New Zealand’s Chemical Classification and Information Database (CCID)
- Organization for Economic Co-operation and Development High Production Volume Chemicals Program
- Organization for Economic Co-operation and Development Screening Information Data Set
- World Health Organization

**Revision date** 10-April-2020

**Revision Note** No information available.

**Disclaimer**
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet
Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies that the following product(s) is produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z1077</td>
<td>Zinc Gluconate, USP</td>
</tr>
</tbody>
</table>

Spectrum is an FDA registered and inspected Drug Establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA: 2020632  
Spectrum-New Brunswick, NJ: 2246824

Thank you for your interest in Spectrum products. If we may be of further assistance, please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com

Sincerely,

Oralia Chavez  
Quality Assurance Specialist
Manufacturing Process Flowchart
Zinc Gluconate, USP – Z1077

Glucose

Zinc oxide

Oxidation & neutralization

Filtration

Decolorization

Filtration & concentration

Crystallization

Centrifugation

Drying

Sieving & packaging

Mother liquor
Z1077, Zinc Gluconate, USP

Source Statement
The above mentioned catalog item is manufactured from zinc oxide and glucose (derived from corn). No animal derived products are used in the manufacturing process.

BSE/TSE Statement
The above mentioned catalog item does not contain nor is manufactured using any animal derived products and is therefore, BSE/TSE free.

Allergen Statement
The above mentioned catalog item does not contain any of the following:

- Milk
- Egg
- Fish
- Shellfish
- Tree Nuts
- Wheat
- Peanuts
- Soy
- Cereals containing Gluten
- Celery
- Mustard
- Sesame Seed
- Corn
- Latex
- Sulfites > 10 ppm

GMO Statement
The above mentioned catalog item is manufactured without the use of genetically modified organisms and is therefore GMO free.

Melamine Statement
The above mentioned catalog does not use or add melamine to the manufacturing process and is considered melamine-free.

Animal Testing Statement
The above mentioned catalog item has not been tested on animals.
Organic Compliance Statement
The above mentioned catalog item has not been produced using GMOs, irradiation, ethylene oxide (EtO) or sewage sludge.

Shelf Life Statement
The above mentioned catalog item is typically assigned a shelf life of 60 months from the date of manufacture. The actual assigned shelf life for any specific lot should be referenced on the Certificate of Analysis.

Other Chemicals Statement
Spectrum does not have any reason to suspect the above mentioned catalog item contains any of the following chemicals. This product does not come into contact with these chemicals during packaging or storage:

- Aflatoxins
- CMR Substances
- Bisphenol A (BPA)
- Preservatives
- Pesticides
- Phthalates
RE: Elemental Impurities - Zinc Gluconate, USP (Cat# Z1077)

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

The above material complies with the USP<232>, <233> Elemental Impurities and the ICH Q3D Elemental Impurities Guideline. The following elemental impurities are likely to be present:

<table>
<thead>
<tr>
<th>Elemental Impurity</th>
<th>Class</th>
<th>Expected Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium</td>
<td>Cd</td>
<td>&lt; 5 ppm</td>
</tr>
<tr>
<td>Lead</td>
<td>Pb</td>
<td>&lt; 10 ppm</td>
</tr>
<tr>
<td>Arsenic</td>
<td>As</td>
<td>&lt; 3 ppm</td>
</tr>
</tbody>
</table>

Other elemental impurities considered by USP <232>, <233> and ICH Q3D which are not addressed in the above mentioned table are not likely to be present. These substances are not used in the production process, are not intentionally added or known to be present in the above mentioned material.

This information is subject to change and is intended for risk assessment only. It is responsibility of the end user to evaluate suitability of any chemical for the intended use as well as to assess compound-specific limits of daily intake of metal impurities. For lot-specific information, please refer to the respective Certificate of Analysis.

If you have any further questions, please contact us by telephone at 1(800)772-8786 Option 2, or by email at TechServices@spectrumchemical.com.

Sincerely,

Technical Services
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature.
To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

The above mentioned catalog item complies with the requirements of the USP <467> Residual Solvents and the ICH Q3C Residual Solvents Guideline. No Class 1, Class 2, Class 3 or other solvents are used or produced in the manufacture of this product.

For lot-specific information, please refer to the respective Certificate of Analysis.

If you have any further questions, please contact us by telephone at 1(800)772-8786 Option 2, or by email at TechServices@spectrumchemical.com.

Sincerely,

Technical Services
Spectrum Chemical Mfg. Corp.

This document has been produced electronically and is valid without a signature.
Label Information

The Spectrum label presents technical and safety information in an easily understood format. Our technical specialists stay abreast of the latest requirements of the Globally Harmonized System for Classification and Labelling of Chemicals (GHS), as well as the Occupational Safety and Health Administration (OSHA), the Food and Drug Administration (FDA) and other government regulatory agencies in order to ensure compliance, accuracy and concise hazard communication. Below you will find a typical label example for this catalog item.
Dear Valued Customer:

This letter is to inform you of Spectrum Chemicals and Laboratory Products’ Lot Numbering System. The system is based on an alpha-numerical sequence which provides the month, year and location of production.

The lot numbering system utilized until 2010 is a sequence of six characters, two letters followed by four numbers. The first letter represents the year, for example, Y denotes 2009 and Z denotes 2010. The second letter represents the month and site, for example, A-L denotes January through December at Spectrum’s Gardena, CA facility, while M-X denotes January through December at the New Brunswick, NJ facility. The following four numbers are sequentially assigned.

Example: ZI0928 = The 928th material produced in California in September 2010

The lot numbering system utilized for 2011 and forward, is a sequence of seven characters. The first character, a number, represents the production facility:

1 = Gardena, CA Facility
2 = New Brunswick, NJ Facility
3 = China Facility
4 = Pharmacy, NJ Facility

The second character, a letter, represents the year. For example, A denotes 2011 and B denotes 2012. The third character, a letter, represents the month, with A denoting January and L denoting December. The following four numbers are sequentially assigned.

Example: 2AA0706 = The 706th material produced in New Jersey in January 2011

Thank you for your interest with Spectrum products. Please feel free to contact us at 310-516-8000 or via email at quality_assurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Oralia Chavez,
Quality Assurance Specialist
The following product(s) prepared by the named company are certified kosher with the stated requirements:

**Spectrum Laboratory Products, Inc.**
S-0032

14422 South San Pedro Street
Gardena CA 90248
USA

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Z1077, Zinc Gluconate, USP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Spectrum</td>
</tr>
<tr>
<td>UKD-ID</td>
<td>KSAV3-J1F3V22</td>
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<td>P</td>
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<td>KSA</td>
</tr>
</tbody>
</table>

This certificate expires on **Feb 01, 2023**

Rabbi Binyomin Lisbon
Kashrus Administrator

Placing the KSA logo on products not listed above constitutes an un-authorized use of the KSA symbol, which is a federally registered trademark.
This is to certify that the following product(s) have been produced under the supervision of the Islamic Food and Nutrition Council of America (IFANCA). The production facility as well as component ingredients have been reviewed and approved. The product(s) are in compliance with the halal requirements under Islamic laws.

Date: August 23, 2022  
Document #: 11205.11206.II225100

<table>
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<tr>
<th>Product Name</th>
<th>Company Name &amp; Address</th>
<th>Product Code</th>
<th>Halal-ID</th>
<th>Product Certificate #</th>
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<td>Zinc Gluconate, USP</td>
<td>Spectrum Laboratory Products, Inc. 755-769 Jersey Ave New Brunswick, New Jersey 08901 USA</td>
<td>Z1077</td>
<td>C50154</td>
<td>HC-22SP8488</td>
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Muhammad Munir Chaudry, Ph.D.  
President

This Certificate is valid until August 31, 2023 and subject to renewal at that time.