

# Safety Data Sheet

**Section 1  
Identification of the Substance and of the Supplier**

|                              |                                                                                                                      |
|------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Product Name/Identification: | SUL4R-PLUS® Zinc                                                                                                     |
| Synonyms:                    | Gypsum, Flue Gas Desulfurization (FGD) Gypsum, Calcium Sulfate Dihydrate                                             |
| Recommended Use:             | Plant nutrition                                                                                                      |
| Restrictions on Use:         | Applicability for certain crops and soil types should be verified with state and local agricultural extension agents |
| Manufacturer:                | SUL4R-PLUS, LLC                                                                                                      |
| Address:                     | 12601 Plantside Drive<br>Louisville, KY 40299                                                                        |
| Website:                     | <a href="http://SUL4R-PLUS.com">http://SUL4R-PLUS.com</a>                                                            |
| Phone:                       | 844-822-8385                                                                                                         |
| Emergency phone number:      | Business hours: 844-822-8385<br>After hours: 502-779-1114                                                            |


**Section 2  
Hazards Identification**

**2.1 Classification of the Substance**

***GHS Classification(s) according to OSHA Hazard Communication Standard (29 CFR 1910.1200):***

Eye Damage Category 1

## 2.2 Label Elements

| <b>Labelling according to 29 CFR 1910.1200 Appendices A, B and C</b> |                                                                                                                                                                                                                        |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard Pictogram(s):                                                 |                                                                                                                                       |
| Signal Word:                                                         | Danger.                                                                                                                                                                                                                |
| Hazard Statements:                                                   | Causes serious eye damage.                                                                                                                                                                                             |
| Precautionary Statements:                                            | <p>Wear eye protection.</p> <p>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>Immediately call a poison center or doctor.</p> |

## 2.3 Other Hazards

None known. Product incorporates dust control agent that mitigates the presence of respirable dust.

## Section 3 Composition/Information on Ingredients

| Chemical Name                                   | CAS Number | Amount by Weight % | Hazard Classification                                                       |
|-------------------------------------------------|------------|--------------------|-----------------------------------------------------------------------------|
| Synthetic Gypsum<br>(calcium sulfate dihydrate) | 10101-41-4 | 81-91%             | Specific Target Organ Toxicity-<br>Single Exposure<br>(Respiratory Effects) |
| Ammonium Lignosulfonate<br>(stabilizer)         | 8061-53-8  | 4-8%               | Eye Irritant Category 2B<br>Skin Irritant Category 2                        |
| Zinc Sulfate Monohydrate                        | 7446-19-7  | 3-9%               | Eye Damage Category 1<br>Acute Toxicity-Oral Category 4                     |

## Section 4

### First Aid Measures

#### 4.1 Description of First Aid Measures

|                      |                                                                                                                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation:</b>   | If product is inhaled and irritation of the nose or coughing occurs, remove person to fresh air. Get medical advice/attention if respiratory symptoms persist.                                                             |
| <b>Ingestion:</b>    | No specific first aid measures are required.                                                                                                                                                                               |
| <b>Skin Contact:</b> | If contact with skin occurs, wash thoroughly with neutral soap and water. Seek medical advice/attention if skin irritation, skin rashes or dermatitis develop.                                                             |
| <b>Eye Contact:</b>  | If the material gets into the eye, flush the eye under running water for at least 15 minutes. If easy to do, remove contact lenses and continue to flush with water. Seek medical advice/attention if irritation persists. |

#### 4.2 Most Important Health Effects, Both Acute and Delayed

##### Acute Effects:

Corrosive to eyes. May cause redness, pain, burns, blisters, and blurred vision if contact with eyes occurs.

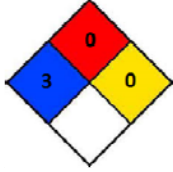
##### Chronic Effects:

None known.

#### 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Seek first aid or call a doctor or Poison Control Center if contact with eyes occurs and irritation remains after rinsing.

## Section 5 Firefighting Measures



NFPA Rating:

|                                                                       |                                                                                                                    |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Suitable Extinguishing Media:</b>                                  | This product is not flammable or combustible. Use extinguishing media appropriate for fighting surrounding fire.   |
| <b>Unsuitable Extinguishing Media:</b>                                | Not applicable, the product is not flammable or combustible.                                                       |
| <b>Special Protective Equipment and Precautions for Firefighters:</b> | As with any fire, wear self-contained breathing apparatus (NIOSH approved or equivalent) and full protective gear. |
| <b>Specific Hazards:</b>                                              | This product poses no fire-related hazard.                                                                         |
| <b>Hazardous Combustion Products:</b>                                 | Above 1450°C this product can produce sulfur dioxide and calcium oxide (SO <sub>2</sub> and CaO).                  |

## Section 6 Accidental Release Measures

|                                                               |                                                                                                                                                                                                               |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal Precautions:</b>                                  | Avoid contact with eyes.                                                                                                                                                                                      |
| <b>Protective Equipment:</b>                                  | Use personal protective equipment as recommended in Section 8. For airborne concentrations exceeding Occupational Exposure Levels (OELs), use a self-contained breathing apparatus (SCBA).                    |
| <b>Emergency Procedures:</b>                                  | Contain spill area and protect from pedestrian or vehicle traffic. Use scooping, water spraying/flushing/misting or ventilated vacuum cleaning systems to clean up spills. Do not use pressurized air.        |
| <b>Methods and Materials for Containment and Cleaning Up:</b> | Avoid generating dust. Shovel up spilled material and place in suitable container. Prevent contamination of drains or waterways. Dispose in accordance with federal, state/provincial and local requirements. |

## Section 7

### Handling and Storage

#### Precautions for Safe Handling and Storage:

Practice good housekeeping. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Wash or vacuum clothing that has become dusty. Avoid eating, smoking, or drinking while handling the material.

## Section 8

### Exposure Controls/Personal Protection

#### 8.1 Control Parameters

| Chemical Name                                                                                    | OSHA PEL<br>(mg/m <sup>3</sup> ) | ACGIH TLV<br>(mg/m <sup>3</sup> ) | NIOSH REL TWA<br>(mg/m <sup>3</sup> ) | CA-OSHA PEL<br>(mg/m <sup>3</sup> ) |
|--------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------|---------------------------------------|-------------------------------------|
| Gypsum (calcium sulfate);<br>based on Particles not<br>otherwise regulated (PNOR):<br>Total Dust | 15                               | -                                 | 10                                    | 10                                  |
| Gypsum (calcium sulfate)<br>based on PNOR: Respirable<br>Fraction                                | 5                                | -                                 | 5                                     | 5                                   |

#### 8.2 Exposure Controls

##### 8.2.1 Engineering Controls

No specific controls required. Ventilate to keep airborne concentrations below exposure limits. Use of an enclosed tractor cab with particulate air filtration can reduce the risk of inhaling dusts and soils during application.

##### 8.2.2 Personal Protection Equipment (PPE)

**Skin Protection:** Wear gloves and protective clothing. Wash hands with soap and water after contact with material.

**Eye Protection:** Wear protective glasses with side shields. Avoid contact lenses.

**Respiratory Protection:** Use only with adequate ventilation/personal protection. OSHA Regulations (29 CFR 1910.134 - Respiratory Protection) must be followed whenever work conditions require a respirator. A NIOSH approved particulate respirator is recommended when engineering controls are not feasible, or while engineering controls are being instituted, and if an OSHA PEL or ACGIH TLV is exceeded.

**Personal Hygiene:** Work clothing should be washed regularly. Wash hands before eating, drinking, or using tobacco products. Wash exposed skin with soap and water.

**Section 9**  
**Physical and Chemical Properties**

| Property                                         | Value                                  | Property                                             | Value                     |
|--------------------------------------------------|----------------------------------------|------------------------------------------------------|---------------------------|
| <b>Appearance (physical state, color, etc.):</b> | Granular; tan/brown/light gray         | <b>Upper/lower flammability or explosive limits:</b> | Not Applicable            |
| <b>Odor:</b>                                     | None                                   | <b>Vapor Pressure:</b>                               | Not Applicable            |
| <b>Odor threshold:</b>                           | Not Applicable                         | <b>Vapor Density:</b>                                | Not Applicable            |
| <b>pH:</b>                                       | ≤ 9 but may be as low as 4 in solution | <b>Specific gravity or relative density:</b>         | 2.19 g/cc                 |
| <b>Melting point/freezing point:</b>             | Not Applicable                         | <b>Solubility(ies):</b>                              | Soluble in water          |
| <b>Initial boiling point and boiling range:</b>  | Not Applicable                         | <b>Partition coefficient: n-octane/water:</b>        | Not Applicable            |
| <b>Flash point:</b>                              | Not Applicable                         | <b>Auto ignition temperature:</b>                    | Not Applicable            |
| <b>Evaporation rate:</b>                         | Not Applicable                         | <b>Decomposition temperature:</b>                    | 1450°C                    |
| <b>Flammability (solid, gas):</b>                | Not Applicable                         | <b>Viscosity:</b>                                    | Not Applicable            |
| <b>Physical state:</b>                           | Solid                                  | <b>Corrosivity towards steel:</b>                    | 0.56 millimeters per year |

## Section 10

### Stability and Reactivity

|                                            |                                                                                                                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reactivity:</b>                         | Avoid contact with strong acids and strong oxidizers.                                                                                                                     |
| <b>Chemical Stability:</b>                 | Stable in dry environments.                                                                                                                                               |
| <b>Possibility of hazardous reactions:</b> | Contact with strong acids could result in release of carbon dioxide.                                                                                                      |
| <b>Conditions to avoid:</b>                | Contact with incompatible materials (see below).                                                                                                                          |
| <b>Incompatible materials:</b>             | Strong acids, aluminum (at high temperatures), diazomethane.                                                                                                              |
| <b>Hazardous decomposition products:</b>   | No hazardous decomposition up to 1450°C. Above 1450°C it could decompose to calcium oxide (CaO) and releases sulfur dioxide (SO <sub>2</sub> ) and various carbon oxides. |

## Section 11

### Toxicological Information

**Note:** No specific data are available for the product as a whole, so this information pertains to calcium sulfate dihydrate which composes 81-91% of the product and zinc sulfate monohydrate which may be present in the product at concentrations up to 9%.

#### **Carcinogenicity**

None known.

#### **Animal Data (Calcium Sulfate Dihydrate)**

##### **Acute Oral Toxicity**

Species: Rat (Sprague-Dawley)

Route of Administration: Oral (gavage)

Method: OECD Test Guideline 420 (Acute Oral Toxicity-Fixed dose procedure)

2,000 mg/kg body weight of test substance was administered to 4 female rats during main study (50, 300 and 2,000 mg/kg body weight administered during sighting study).

No mortality, no specific clinical signs observed during test period.

LD50 (Lethal Dose): > 2,000 mg/kg body weight

##### **Skin Irritation**

Species: Rabbit (New Zealand White)

Test Type: *In vivo*

Method: OECD TG 404 (1991) "Acute Dermal Irritation/Corrosion"

Exposure Period: 4 hours; 500 mg/site/rabbit

No erythema, no eschar and no edema (score of zero under OECD method: grading of skin reaction) was observed at the skin on the backs of three rabbits during test period.

Result: Not irritating

#### **Skin Sensitization**

Species: Guinea pig (Hartley)

Test Type: Buehler test

Method: OECD TG 406 (1991) "Skin Sensitization"

Exposure Period: hours/week for 3 consecutive weeks; 0.4 grams/site/guinea pig was applied topically with an occluded patch to the backs of 40 male guinea pigs. After 6 hours, the material was removed and the skin was examined using the sensitization grading system.

Result: Not sensitizing

**No acute inhalation toxicity, acute dermal toxicity, corrosiveness/irritation, or eye irritation corrosion studies are available for calcium sulfate dihydrate. Mutagenicity studies and Reproduction / Developmental Toxicity Screening Tests were negative.**

#### **Animal Data (Zinc sulfate monohydrate based on data conducted with zinc sulfate heptahydrate)**

#### **Acute Oral Toxicity**

Species: Rat (Sprague-Dawley)

Route of Administration: Oral (gavage)

Method: OECD Test Guideline 401(Acute Oral Toxicity)

LD50 (Lethal Dose): 1710-2280 mg/kg body weight

#### **Acute Dermal Toxicity**

Species: Rat (Wistar)

Method: OECD Test Guideline 402 (Acute Dermal Toxicity)

LD50 (Lethal Dose): > 2,000 mg/kg body weight

#### **Skin Irritation**

Species: Rabbit (New Zealand White)

Test Type: *In vivo*

Method: OECD TG 404 (1991) "Acute Dermal Irritation/Corrosion"

Exposure Period: 4 hours; 500 mg/site/rabbit

Result: Not irritating

#### **Eye Irritation**

Species: Rabbit (New Zealand White)

Test Type: *In vivo*

Method: OECD TG 405 (1991) "Acute Eye Irritation/Corrosion"

Exposure Period: Instilled 98.1 mg; Observed 1, 24, 48 and 72 hours, 7, 14, 21 days

Result: Severely irritating

#### **Skin Sensitization**

Species: Mice (BALB/c)

Test Type: Local Lymph Node Assay

Method: OECD TG 406 "Skin Sensitization"

Result: Not sensitizing

***In vitro* and *in vivo* mutagenicity studies were negative for zinc sulfate. Dietary zinc supplementation at**



4,000 ppm in the form of zinc sulfate reduced male fertility in rats but did not result in maternal toxicity or teratogenic effects at the highest doses tested in rats, mice and rabbits. Zinc sulfate was found to be non-carcinogenic in a one-year drinking water study in mice.

## Section 12 Ecological Information

### 12.1 Toxicity

No data available on final product.

### 12.2 Persistence and Degradability

Not relevant for inorganic materials.

### 12.3 Bioaccumulative Potential

No data available.

### 12.4 Mobility in Soil

No data available.

### 12.5 Results of PBT and vPvB Assessment

No data available.

### 12.6 Other Adverse Effects

None known.

## Section 13 Disposal Considerations

See Sections 7 and 8 above for safe handling and use, including appropriate hygienic practices.

Recover or recycle if possible. Disposal should be in accordance with applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

## Section 14 Transport Information

|                               |                                                                                                |
|-------------------------------|------------------------------------------------------------------------------------------------|
| UN number:                    | Not classified as a hazardous material by U.S. Department of Transportation (DOT) regulations. |
| UN proper shipping name:      | Not applicable.                                                                                |
| Transport hazard class(es):   | Not applicable.                                                                                |
| Packing group, if applicable: | Not applicable.                                                                                |

**Section 15  
Regulatory Information**

- TSCA Inventory Status

All components of this product are listed on the TSCA Inventory or are exempt from TSCA Inventory requirements.

- California Proposition 65

Regulatory information: This product is not labeled for sale or use in the State of California, thus no Proposition 65 declarations are required.

- State Right-to-Know (RTK) status

| Component                                                 | CAS                        | MA <sup>1,2</sup> | NJ <sup>3,4</sup> | PA <sup>5</sup> | RI <sup>6</sup> |
|-----------------------------------------------------------|----------------------------|-------------------|-------------------|-----------------|-----------------|
| Gypsum;<br>calcium sulfate;<br>calcium sulfate, dihydrate | 7778-18-9 OR<br>10101-41-4 | Yes               | Yes               | Yes             | No              |
| Zinc sulfate monohydrate                                  | 7446-19-7                  | Yes               | Yes               | Yes             | Yes             |

<sup>1</sup>Massachusetts Department of Public Health, no date

<sup>2</sup>189<sup>th</sup> General Court of The Commonwealth of Massachusetts, no date

<sup>3</sup>New Jersey Department of Health and Senior Services, 2010a

<sup>4</sup>New Jersey Department of Health, 2010b

<sup>5</sup>Pennsylvania Code, 1986

<sup>6</sup>Rhode Island Department of Labor and Training, no date

## Section 16

### Other Information, Including Date of Preparation or Last Revision

Date of preparation or last revision: October 2015

#### Acronyms and Abbreviations

- ACGIH: American Conference of Industrial Hygienists
- CA: California
- CAS: Chemical Abstract Services
- CFR: Code of Federal Regulations
- FGD Flue Gas Desulfurization
- GHS: Globally Harmonized System of Classification and Labelling
- IARC: International Agency for Research on Cancer
- LC50: Concentration resulting in the mortality of 50 % of an animal population
- LD50: Dose resulting in the mortality of 50 % of an animal population
- MA: Massachusetts
- NA: Not Applicable
- NFPA National Fire Protection Association
- NIOSH: National Institute of Occupational Safety and Health
- NJ: New Jersey
- NTP: U.S. National Toxicology Program
- OECD Organization for Economic Cooperation and Development
- OEL: Occupational Exposure Limit
- OSHA: Occupational Safety and Health Administration
- PA: Pennsylvania
- Pa: Paschal
- PBT: Persistent, Toxic and Bioaccumulative
- PEL: Permissible exposure limit
- PNOR Particles not otherwise regulated
- PPE: Personal Protective Equipment
- RCS: Respirable Crystalline Silica
- REL: Recommended exposure limit
- RI: Rhode Island
- RTK: Right-to-Know
- SCBA: Self-contained breathing apparatus
- SDS: Safety Data Sheet
- SIDS Screening Information Data Set
- STOT-RE: Specific target organ toxicity-repeated exposure
- STOT-SE: Specific target organ toxicity-single exposure
- TLV: Threshold limit value
- TSCA: Toxic Substances Control Act
- TWA: Time-weighted average
- U.S.: United States
- U.S. DOT: United States of Department of Transportation
- vPvB Very Persistent and Very Bioaccumulative

DISCLAIMER

The information contained herein is intended as a guide to the handling of the material and it has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling by the end user may result in additional exposure considerations that cannot be foreseen by the manufacturer. The information contained herein is derived from sources we believe to be reliable. No warranty of any kind is given or implied and the manufacturer will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein.

**SUL4R-PLUS fertilizer is covered by U.S. Pat. 9,873,638 B2 & U.S. Pat. 9,919,977 B2 | SUL4R-PLUS<sup>®</sup> is a registered trademark of SUL4R-PLUS, LLC**