Safety Data Sheet

Section 1
Identification of the Substance and of the Supplier

Product Name/Identification:	SUL4R-PLUS®
Synonyms:	Gypsum, Flue Gas Desulfurization (FGD) Gypsum, Calcium Sulfate Dihydrate
Recommended Use:	Agricultural amendment, plant nutrient and soil conditioner
Restrictions on Use:	Applicability for certain crops and soil types should be verified with state and local agricultural extension agents
Manufacturer:	Charah, Inc.
Address:	12601 Plantside Drive Louisville, KY 40299
Website:	http://charah.com
Phone:	877-314-7724
Emergency phone number:	Business hours: 877-314-7724 After hours: 502-410-9295

Section 2
Hazards Identification

2.1 Classification of the Substance

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

Not Classified

While this product is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and use of the product. This SDS should be retained and available for employees and other users of this product.

2.2 Label Elements

Labeling according to OSHA Hazard Communication Standard (29 CFR 1910.1200):

No Hazard Pictograms, Signal Word or Precautionary Statements are applicable to this product.

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 (calcium sulfate dihydrate)	10101-41-4	90-95%	Specific Target Organ Toxicity-Single Exposure (Respiratory Effects)
Ammonium Lignosulfonate (stabilizer)	8061-53-8	4-8%	Eye Irritant Category 2B Skin Irritant Category 2

Section 4
First Aid Measures

4.1 Description of First Aid Measures

Inhalation:	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.
Ingestion:	No specific first aid measures are required.
Skin Contact:	If contact with skin occurs, wash thoroughly with neutral soap and water. Seek medical advice/attention if skin irritation, skin rashes or dermatitis develop.
Eye Contact:	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:
None known.

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 product occurs and symptoms remain.

Section 5
Firefighting Measures

NFPA Rating:

Suitable Extinguishing Media:	This product is not flammable or combustible. Use extinguishing media appropriate for fighting surrounding fire.
Unsuitable Extinguishing Media:	Not applicable, the product is not flammable or combustible.
Special Protective Equipment and Precautions for Firefighters:	As with any fire, wear self-contained breathing apparatus (NIOSH approved or equivalent) and full protective gear.
Specific Hazards:	This product poses no fire-related hazard.
Hazardous Combustion Products:	Above 1450°C this product can produce sulfur dioxide and calcium oxide (SO_2 and CaO).

Section 6
Accidental Release Measures

Personal Precautions:	None required.
Protective Equipment:	Use personal protective equipment as recommended in Section 8. For airborne concentrations exceeding Occupational Exposure Levels (OELs), use a self-contained breathing apparatus (SCBA).
Emergency Procedures:	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.
Methods and Materials for Containment and Cleaning Up:	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 (mg/m^3)	ACGIH TLV (mg/m^3)	NIOSH REL TWA (mg/m^3)	CA-OSHA PEL (mg/m^3)
Gypsum (calcium sulfate); based on Particles not otherwise regulated (PNOR): Total Dust	15	-	10	10
Gypsum (calcium sulfate) based on PNOR: Respirable 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: If eye contact is possible, 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
Appearance (physical state, color, etc.):	Granular; tan/brown/light gray	**Upper/lower flammability or explosive limits:**	Not Applicable
Odor:	None	**Vapor Pressure:**	Not Applicable
Odor threshold:	Not Applicable	**Vapor Density:**	Not Applicable
pH:	≤ 9 but may be as low as 4 in solution	**Specific gravity or relative density:**	2.19 g/cc
Melting point/freezing point:	Not Applicable	**Solubility(ies):**	Soluble in water
Initial boiling point and boiling range:	Not Applicable	**Partition coefficient: n-octane/water:**	Not Applicable
Flash point:	Not Applicable	**Auto ignition temperature:**	Not Applicable
Evaporation rate:	Not Applicable	**Decomposition temperature:**	1450°C
Flammability (solid, gas):	Not Applicable	**Viscosity:**	Not Applicable
Physical state:	Solid	**Corrosivity towards steel:**	0.56 millimeters per year

Section 10
Stability and Reactivity

Reactivity:	Avoid contact with strong acids and strong oxidizers.
Chemical Stability:	Stable in dry environments.
Possibility of hazardous reactions:	Contact with strong acids could result in release of carbon dioxide.
Conditions to avoid:	Contact with incompatible materials (see below).
Incompatible materials:	Strong acids, aluminum (at high temperatures), diazomethane.
Hazardous decomposition products:	No hazardous decomposition up to 1450°C. Above 1450°C it could decompose to calcium oxide (CaO) and releases sulfur dioxide (SO_2) 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 90-95% of the product.

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.

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[1,2]	NJ[3,4]	PA[5]	RI[6]
Gypsum; calcium sulfate; calcium sulfate, dihydrate	7778-18-9 OR 10101-41-4	Yes	Yes	Yes	No

[1] Massachusetts Department of Public Health, no date
[2] 189th General Court of The Commonwealth of Massachusetts, no date
[3] New Jersey Department of Health and Senior Services, 2010a
[4] New Jersey Department of Health, 2010b
[5] Pennsylvania Code, 1986
[6] 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: January 2016

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
- 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
- REL: Recommended exposure limit
- RI: Rhode Island
- RTK: Right-to-Know
- SCBA: Self-contained breathing apparatus
- SDS: Safety Data Sheet
- 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.