

Magruder 230511 Silicon Fertilizer

results due June 15, 2023

Typical Analysis

Silicon (Si)	4 %
Calcium (Ca)	26.5 %
Magnesium (Mg)	4.8 %
Copper (Cu)	0.003 %
Iron (Fe)	15.6 %
Manganese (Mn)	2.3 %
Sulfur (S) (Total)	0.2 %

Derived from: Larnite, Hatrunite, Portlandite, Calcite, Magnesioferrite, Akermanite/Gehlenite, Brownmillerite/Ferrite/C₄AF, Quartz

Also analyze for:

*As (ppm), Cd (ppm), Cr (ppm), Co (ppm), Pb (ppm),
Hg (ppm), Mo (ppm), Ni (ppm), Se (ppm), Zn (%)*

The units above are those required for reporting data from this Magruder sample. They may not be the units required on a commercial fertilizer label.

Note: This Magruder Check Sample material is not to be used in the manufacture of products nor applied to any crops or for other fertilizer uses. It is intended for analytical testing purposes only.

SDS for this product can be found at:
<http://www.magruderchecksample.org/SDS/230511.pdf>

SDS for Magruder 230511

1. Identification

- **Product identifier**
- **Trade name:** Plant Tuff (Plant Tuff w/ Tuff Shield, Silicon Fertilizer, Silicon Fertilizer w/ Tuff Shield, Silicon pHertilizer, Silicon pHertilizer w/ Tuff Shield)
- **CAS Number:** Mixture Section 3
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Product Description:** Silicon Fertilizer derived from Calcium Silicate, Calcium Magnesium Silicate
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Plant Tuff Inc.
9600 Mercier St.
Dearborn, Michigan 48120
Phone - (855) 857-5268
contact@planttuff.com
www.planttuff.com
- **Emergency telephone number:**
John J. Yzenas Jr.
Director of Technical Services
Phone - (219) 741-6098
jyzenas@levyco.net

2. Hazard(s) identification

- **Classification of the substance or mixture:**



GHS07

- Acute Tox. 4 H332 Harmful if inhaled.
- Skin Irrit. 2 H315 Causes skin irritation.
- STOT SE 3 H335 May cause respiratory irritation.
- Eye Irrit. 2B H320 Causes eye irritation.

- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labeling:**
Basic Oxygen Furnace (BOF) Slag / Blast Furnace (BF) Slag
- **Hazard statements**
Harmful if inhaled.
Causes skin and eye irritation.
May cause respiratory irritation.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.

Trade name: Plant Tuff

Wear protective gloves.

Wash thoroughly after handling.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	1
FIRE	0
REACTIVITY	0

Health = 1
Fire = 0
Reactivity = 0

· **Hazard(s) not otherwise classified (HNOC):** None known

3. Composition/information on ingredients

Larnite, beta-dicalcium-silica [Beta - Ca ₂ SiO ₄]
Hatrurite, tri-calcium-silicate [Ca ₃ Si ₅]
Portlandite, calcium-hydroxide [Ca(OH) ₂]
Calcite, calcium-carbonate [CaCO ₃]
Magnesioferrite
Akermanite / Gehlenite
Brownmillerite / Ferrite / C ₄ AF
Quartz / SiO ₂

· **Chemical characterization: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous Components:**

91722-09-7	Basic Oxygen Furnace (BOF) Slag	50 - 100%
	⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	
65996-69-2	Blast Furnace (BF) Slag	<50%
	⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	

4. First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Trade name: Plant Tuff

· After inhalation:

Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

· After skin contact:

Wash with cool water and a pH neutral soap or a mild skin detergent. Seek medical attention for rash, burns, irritation and prolonged unprotected exposure.

· After eye contact:

Flush with water immediately for at least 15 minutes, including under the lids to remove all particles. Seek medical attention for abrasions and burns.

· After swallowing:

Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control center immediately.

· Information for doctor:

· Most important symptoms and effects, both acute and delayed: No further relevant information available.

· Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5. Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· Special hazards arising from the substance or mixture No further relevant information available.

· Advice for firefighters

· Protective equipment:

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

6. Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions: None

· Methods and material for containment and cleaning up:

Pick up mechanically or by hand tools and reuse or dispose of as a common non-hazardous material in accordance with applicable federal, state and local regulations. Wetting the material prior to clean up may be necessary to suppress dust.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7. Handling and storage

· Handling:

· Precautions for safe handling

Use personal protection equipment as outlined in section 8.

Respirable dust may be generated during processing, handling, and storage.

· Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles: No special requirements.

· Information about storage in one common storage facility: Not required.

· Further information about storage conditions: None.

· Specific end use(s) No further relevant information available.

8. Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**

Exposure Limits:

ACGIH TLV's for "Nuisance Dusts"	
Total Dust:	10mg/M3 < 1% quartz max.
Respirable dust:	5mg/M3 < 1% quartz max.

· **Components with occupational exposure limits:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls**

Provide general ventilation in processing and storage. Provide local exhaust if necessary to reduce dust levels below acceptable limits.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Immediately remove all soiled and contaminated clothing and wash before reuse.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**



NIOSH/OSHA or EN approved respiratory protection is recommended for use in airborne concentrations exceeding exposure limits.

· **Protection of hands:**



Protective gloves

· **Material of gloves** Waterproof or water resistant material

· **Eye protection:**

Wear ANSI approved glasses or goggles to prevent eye contact. Splash shields should be worn in wet conditions. Wearing contact lenses in dusty conditions is not recommended.

· **Body protection:**

Wear hard hats, protective clothing and hard toed shoes to protect from impact and abrasion. In wet conditions, impervious PPE should be worn to protect the skin.

9. Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Granule

Color: Grey

· **Odor:** Not Distinctive

· **Odor threshold:** Not determined.

· **pH-value:** 9.5-12.5 (in water)

Trade name: Plant Tuff

- **Change in condition**
 - Melting point/Melting range:** Not determined.
 - Boiling point/Boiling range:** Not determined.
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Not determined.
- **Ignition temperature:**
 - Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
 - Lower:** Not determined.
 - Upper:** Not determined.
- **Vapor pressure:** Not applicable.
- **Density:** 3.1-3.6 (Bulk)
- **Relative density** Not determined.
- **Vapor density** Not applicable.
- **Evaporation rate** Not applicable.
- **Solubility in / Miscibility with Water:** Insoluble.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not applicable.
 - Kinematic:** Not applicable.
- **Other information** No further relevant information available.

10. Stability and Reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Un-weathered steel slag may contain potentially expansive compounds (Free Lime)
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.

11. Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Corrosivity:**
Non-Corrosive (OECD 431)
- **Primary irritant effect:**
Elevated pH in moist conditions may cause irritation to the skin, and eyes or aggravate existing conditions. Can cause serious eye irritation.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful / Irritant

Trade name: Plant Tuff

- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**

Iron and steel furnace slag is not listed as a carcinogen by IARC; however, slag contains trace amounts of crystalline silica which is classified by IARC as known human carcinogens.

· **NTP (National Toxicology Program)**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

12. Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.


13. Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14. Transport information

- **UN-Number**
- **DOT, ADR, ADN, IMDG, IATA** Non-Regulated Material
- **UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA** Non-Regulated Material
- **Transport hazard class(es)**
- **DOT, ADR, ADN, IMDG, IATA**
- **Class** Non-Regulated Material
- **Packing group**
- **DOT, ADR, IMDG, IATA** Non-Regulated Material
- **Environmental hazards:** Not applicable.
- **Special precautions for user** Some areas require the use of tarps on trucks for containment of dust.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** -

15. Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
- **Section 355 (extremely hazardous substances):**
None of the ingredients are listed.
- **Section 313 (Specific toxic chemical listings):**
This material may contain chemicals subject to the reporting requirements of this section of the Emergency Planning and Community Right to Know Act of 1986. Chemical Name: Manganese, Concentration Range: 3 – 8%
- **TSCA (Toxic Substances Control Act):**
None of the ingredients is listed.
- **California Proposition 65**
- **Chemicals known to cause cancer:**
None of the ingredients are listed.
- **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients are listed.
- **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients are listed.
- **Chemicals known to cause developmental toxicity:**
None of the ingredients are listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)**
None of the ingredients are listed.
- **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients are listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients are listed.
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

GHS07
- **Signal word** Warning
- **Hazard-determining components of labeling:**
Basic Oxygen Furnace (BOF) Slag
- **Hazard statements**
Harmful if inhaled.
Causes skin and eye irritation.
May cause respiratory irritation.

Trade name: Plant Tuff

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Wear protective gloves.

Wash thoroughly after handling.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

· **State Right to Know**

91722-09-7	Basic Oxygen Furnace (BOF) Slag ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	50 - 100%
65996-69-2	Blast Furnace (BF) Slag ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	<50%

All ingredients are listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16. Other information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Date of last revision 05/31/2016 Rev-3**

· **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· *** Data compared to the previous version altered. Previous version 05/26/2016 Rev-2**