

## 1. Product Identification

Product name: SSEIF-L (lignin powder)  
Synonyms: No data available  
Molecular weight:  $4.3 \times 10^{12}$  (Mn(g/mol))  
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## 2. Hazard Identification



**Signal Word:** WARNING

**GHS Class:**

Skin Corrosion/Irritation, N/A

Skin Sensitization, N/A

Eye Corrosion/Irritation, N/A

**Hazard Statements:**

H316: Causes mild skin irritation

H317: May cause an allergic skin reaction

H320: Causes eye irritation

**Precautionary Statements:**

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P243: Take precautionary measures against static discharge.

P260: Do not breathe dust/fumes/gas/mist/vapors/spray.

P264 - Wash face, hands and any exposed skin thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P363: Wash contaminated clothing before reuse.

P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P333+313: If skin irritation or a rash occurs: Get medical advice/attention.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention.

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

**Hazards Not Otherwise Classified (HNOC):** May form combustible dust concentrations in air, during processing, including drying.

HMIS Rating (Scale 0-4): Health = 1 Flammability = 1 Physical Hazards = 0

NFPA Rating (Scale 0-4): Health = 1 Flammability = 1 Reactivity = 0

## 3. Composition / Information on Ingredients

CAS #	Chemical Name	Percent
9005-53-2	Lignin	70 ± 5 wt%
9004-34-6	Cellulose	25 ± 5 wt%
7778-18-9	Calcium Sulfate	5 ± 5 wt%

The product also contains water <5 wt%. Properties and composition of the product may vary depending on the manufacture process.

## 4. First Aid Measures

**Eyes:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if symptoms persist.

**Skin:** Wash exposed skin with soap and water. Get medical attention if irritation is persistent or severe or in case of suspected allergic reaction. Wash contaminated clothing before reuse.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if health effects persist or are severe.

**Ingestion:** If material has been swallowed and the exposed person is conscious, rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if adverse health effects persist or are severe.

**Most Important Symptoms and Effects - Acute:****Eyes:** Irritation**Skin:** Mild irritation, may cause allergic reaction in sensitive individuals**Inhalation:** Irritation, coughing, difficult breathing**Ingestion:** Irritation**Most Important Symptoms and Effects - Delayed:** Chronic exposure may lead to skin and/or respiratory sensitization

## 5. Fire Fighting Measures

**Extinguishing Media:** Use an extinguishing agent suitable for surrounding materials**Suitable Extinguishing Media:** CO<sub>2</sub>, Water and dry chemical**Special Hazards:** May form combustible dust concentrations in air (during processing, including drying). Maintain housekeeping to minimize dust accumulation.**Hazardous Combustion Products:** Sulfur oxides, carbon oxides**Advice for Firefighters:** Use SCBA and full protective equipment. Use water spray to reduce/eliminate explosion hazards due to dust.

## 6. Accidental Release Measures

**Personal Precautions, Protective Equipment, Emergency Procedures:** Use appropriate personal protective equipment. Ventilate area. Stop spill if without risk. Sweep or vacuum spills for recovery or disposal. Dust deposits should not be allowed to accumulate on surfaces. Avoid dispersal of dust in air. Use non-sparking tools. Avoid touching or walking through spilled materials. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.**Environmental Precautions:** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution off site.**Releases to the Air:** N/A

## 7. Handling and Storage

**Handling:** Avoid personal contact. Use with adequate ventilation. Wash after handling. No smoking is allowed in areas of storage or use. Avoid generating dust as dust may form explosive concentrations with air. There is a risk of dust explosion in dust-raising operations, such as drying. Workers should wash hands and face before eating, drinking and smoking. Keep containers tightly closed when not in use. Empty containers may contain product residues. All containers should be properly cleaned before reuse.**Storage Requirements:** Store in a cool, dry, ventilated area away from any sources of heat, sparks, flames, ignition and out of direct sunlight. Maintain container labeling. Keep containers securely closed. Protect the storage containers from physical damage. Store away from food and drink.

## 8. Exposure Controls and Personal Protection

**Exposure Limits:** no data available**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.**Protective equipment:****Eye / face protection:** Wear safety glasses with side shields (or goggles).**Skin protection:** Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Nitrile gloves are recommended. Contact glove manufacturer for specific information.**Respiratory protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.**Additional Information:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Any additional personal protective equipment and measures should be selected based on the task being performed and the risks involved. Do not enter a vessel, container, or other equipment or confined space that has contained dewatered lignin, until it has been tested for the presence of reduced sulfur compounds and sufficient oxygen.

## 9. Physical and Chemical Properties

**Appearance and Odor:** Fine brown powder**Odor:** Slight, vanilla**Odor threshold:** N/D**Specific gravity** (water = 1): 1.47 (23oC)**Bulk density:** 0.3~0.4 g/cm<sup>3</sup>**Solubility in water:** Insoluble

pH: 6~8  
**Boiling point/range:** N/D  
**Melting/freezing point:** N/D  
**Flash point:** Not ignitable  
**Lower flammability/explosive limit:** N/D  
**Upper flammability/explosive limit:** N/D  
**Auto-ignition temperature:** N/D  
**Percent volatile:** N/D  
**Vapor pressure:** N/D  
**Vapor density (air = 1):** N/D  
**Evaporation rate:** N/D (water = 1)  
**Partition coefficient (n-octanol/water):** N/D  
**Viscosity:** N/D

## 10. Stability and Reactivity

**Reactivity:** No specific test data related to reactivity is available for this material.

**Chemical Stability:** Material is stable under normal ambient temperature and conditions while in storage and being handled.

**Possible Hazardous Reactions:** Material will not react or polymerize. Dust can react to form explosive mixtures with air in the presence of an ignition source.

**Conditions to Avoid:** Accumulation of dust, dust raising conditions, static electricity, wet or moist conditions.

**Incompatibility:** Oxidizers, reducers, drying oils and organic materials

**Hazardous decomposition products:** CO, CO<sub>2</sub>, nitrogen oxides, sulfur oxides, aldehydes, organic acids, acrid smoke. Decomposition of organic materials such as wood and wood components may produce toxic gases and an oxygen deficient atmosphere in enclosed or poorly ventilated areas.

## 11. Toxicological Information

**Acute Toxicity Estimate (ATE):**

**Oral:** no data available

**Inhalation:** no data available

**Dermal:** no data available

**Toxicity Data:**

Lignin	LD50 Wistar rat ( <i>Rattus norvegicus</i> ):	> 2000 mg/kg
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**Routes of exposure:** Contact, inhalation, ingestion

**Effects of Short-Term Overexposure:**

**Eyes:** Irritation

**Skin:** Mild irritation, may cause allergic reaction in sensitive individuals

**Inhalation:** Irritation, coughing, difficult breathing

**Ingestion:** Irritation

**Effects of Chronic Overexposure:** N/D

**Target Organs:** Eyes, skin, respiratory system, lungs

**Carcinogenicity:**

**NTP:** Not listed

**IARC:** Not listed as a potential carcinogen

**OSHA:** Not listed as a potential carcinogen

**Additional Information:** N/A

## 12. Ecological Information

**Toxicity:**

a. Ecotoxicity effects : No data available

b. Elimination information (persistence and degradability) : No data available

c. Bioaccumulative potential : No data available

d. Mobility in soil : No data available

e. Other adverse effects : No data available

**Persistence and degradability:** no data available

**Mobility in soil :** no data available

**Other adverse effects :** no data available

## 13. Disposal Procedures

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of in process sewers or wastewater treatment facilities. Dispose of surplus and nonrecyclable products in

approved landfills or via a licensed waste disposal contractor. Unused product is not a RCRA hazardous waste. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. This material and its container must be disposed of or reused in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

#### 14. Transportation Information

DOT: Basic shipping requirements: Not dangerous good (not regulated)	Additional information:
IATA: Basic shipping requirements: Not dangerous good (not regulated)	Additional information:
IMDG: Basic shipping requirements: Not dangerous good (not regulated)	Additional information:

#### 15. Regulatory Information

This MSDS was written according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015.

**OSHA:** This material is hazardous according to OSHA 29 CFR 1910.1200.

**Drug Enforcement Administration (DEA) (21 CFR 1308.11-15):** Not controlled

**DSL:** Lignin, alkali (8068-05-1), Sulfur (7704-34-9) are on the Domestic Substance List.

**TSCA:** All ingredients of this material are either listed on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

**CERCLA:** This material does not contain ingredients which are subject to the reporting requirements of CERCLA.

**SARA 313 Information:** This material does not contain any chemical components with known CAS numbers that exceed the de minimis reporting levels established by SARA Title III, section 313 and 40 CFR section 372.

**SARA 311/312 Hazard Categories:** This material, under applicable definitions, meets the following categories:

- Eye Corrosion or Irritation
- Skin Corrosion or Irritation
- Respiratory or Skin Sensitization
- Combustible dust

#### 16. Other Information

**Abbreviations:**

- N/A - Not applicable
- N/D - Not determined

**IMPORTANT:** The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations.

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 End of MSDS