



SAFETY DATA SHEET

BioChoice Lignin

SECTION 1: Identification

Material Name: BioChoice Lignin

Synonyms: Lignin; Dewatered Kraft Lignin; Lignin Powder

Recommended Use: Includes, but not limited to, research and development and manufactured products

Restrictions on Use: No restrictions

Revision Date: 3-5-2020

Manufacturer:

Domtar Inc. – USA
100 Kingsley Park Dr.
Fort Mill, SC 29715

Emergency Phone Numbers:

CHEMTREC (800) 424-9300
Domtar (803) 802-7500

Manufacturing Locations :

Plymouth

(252) 793-8111

SECTION 2: Hazards Identification



Signal Word: WARNING

GHS Class:

Skin Corrosion/Irritation, Category 3
Skin Sensitization, Category 1
Eye Corrosion/Irritation, Category 2B

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

SECTION 3: Composition/Information on Ingredients

CAS #	Chemical Name	Percent
8068-05-1	Lignin, alkali	60-70
7704-34-9	Sulfur	0-2
7732-18-5	Water	30-40

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 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.

SECTION 5: Fire Fighting Measures

Extinguishing Media: Use an extinguishing agent suitable for surrounding materials

Suitable Extinguishing Media: 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.

SECTION 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: Not applicable

SECTION 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. If dewatered lignin or lignin dust comes in contact with water, moisture or other liquids, the resulting wet material and contact liquid could become corrosive and exhibit an acidic pH. 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.

SECTION 8: Exposure Controls and Personal Protection

Exposure Limits:

Chemical Name	ACGIH TLV	OSHA PEL	OEL
Lignin, alkali (8068-05-1)	10 mg/m ³ TWA inhal 3 mg/m ³ TWA resp	15 mg/m ³ TWA total 5 mg/m ³ TWA resp	Not established
Sulfur (7704-34-9)	Not established	Not established	Not established

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.

SECTION 9: Physical and Chemical Properties

Appearance and Odor: Fine brown powder

Odor: Slight, vanilla

Odor threshold: Not determined

Specific gravity (water = 1): Not determined

Bulk density: 300 kg/m³ at 60% dry solids content

Packed density: 610 kg/m³ at 60% dry solids content

Boiling point/range: Not determined

Melting/freezing point: Not determined

Flash point: Closed cup: Not ignitable

Lower flammability/explosive limit: Not determined

Upper flammability/explosive limit: Not determined

Auto-ignition temperature: Not determined

Explosion severity – 20L sphere:

Explosion severity – 20L sphere:

Maximum explosion pressure (bar): 8.8

Maximum rate of pressure rise (bar/s): 774

K_{st} value: (bar.m/s): 210

Minimum ignition energy – Dust cloud (mJ): 10-30

Minimum ignition temperature – Dust cloud: 824-842 °F (440-450 °C)

Limiting oxygen concentration: 11-12% by volume

Minimum explosive concentration: 80-90 g/m³

Decomposition temperature: 829 °F (443 °C)

Percent volatile: Not determined

Vapor pressure: Not determined

Vapor density (air = 1): Not determined

Evaporation rate: Not determined (water = 1)
pH: Not applicable in solid form (2-7 in solution)
Solubility: Not soluble under acidic and neutral conditions. Soluble under alkaline conditions. Soluble in DMSO. Partly soluble in acetone and methanol.
Partition coefficient (n-octanol/water): Not determined
Viscosity: Not determined

SECTION 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. If dewatered lignin or lignin powder comes in contact with water, moisture or other liquids, the resulting wet material as well as the contact liquid could become acidic and corrosive. 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, CO₂, 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.

SECTION 11: Toxicological Information

Acute Toxicity Estimate (ATE): Not determined

Toxicity Data:

Lignin, alkali (8068-05-1):	LD50 Wistar rat (<i>Rattus norvegicus</i>):	> 2000 mg/kg
Sulfur (7704-34-9):	LC50 Mammal (species unspecified): LDLo Human:	> 1660 mg/m ³ 0.17 gm/kg

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: Not determined

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: Not applicable

SECTION 12: Ecological Information

Toxicity:

Component	Result	Species	Exposure
Sulfur (7704-34-9)	Acute EC50 >5000 ppm	Fresh water Daphnia - Daphnia magna	< 24 hours
Sulfur (7704-34-9)	Acute LC50 >180 ppm	Fresh water fish - Bluegill (Lepomis macrochirus) Juvenile (Fledgling, Hatchling, Weanling)	96 hours

Persistence and degradability:

Component	Test	Result	Dose	Inoculum
Lignin, alkali (8068-05-1)	BOD COD	11,600 mg/l 19,600 mg/l		

Partition coefficient (n-octanol/water): Not determined.

Partition coefficient (soil/water) (Koc): Sulfur (7704-34-9) - 1950

Mobility in environmental media: No data available.

Bioaccumulative Potential: No data available

SECTION 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.

SECTION 14: Transportation Information

DOT: Basic shipping requirements: Not regulated
Additional information:

IATA: Basic shipping requirements: Not regulated
Additional information:

IMDG: Basic shipping requirements: Not regulated
Additional information:

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Additional information:

SECTION 15: Regulatory Information

This SDS 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

State regulations:

US - California Prop 65: This product does not contain substances identified on the Proposition 65 list at levels that pose a significant risk for purposes of Section 25249.10© or result in an observable effect for purposes of Section 25249.10© of the Act.

US - Massachusetts RTK - Substance: Listed substance

Sulfur (7704-34-9) Listed.

US - New Jersey RTK - Substances: Listed substance

Sulfur (7704-34-9) Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Sulfur (7704-34-9) Listed.

SECTION 16: Other Information

Date of Issue: 9-22-2015

Revision Date: 3-5-2020

Abbreviations:

- NA - Not applicable
- ND - 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. DOMTAR MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED. Domtar will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.

**Domtar
End of SDS**