



MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT AND COMPANY INFORMATION

PRODUCT IDENTIFIER: Cellulose Insulation, Stabilized Blended Formula

PRODUCT NAME: INS500, INS500CAN, INS502 Insulation

MANUFACTURER: US GreenFiber, LLC
 2500 Distribution Street, Suite 200, Charlotte, NC 28203, USA
Emergency Telephone Number: 800.228.0024 (8am - 5pm EST Mon-Fri)



SECTION 2 – COMPOSITION AND INGREDIENT INFORMATION

| COMPONENT/CAS # | % BY WEIGHT | EXPOSURE LIMITS | CANCER DESIGNATION |
|---|-------------------|---|--------------------|
| Newsprint (Cellulose Fiber) #9004-34-6 | Not less than 85% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) PNOR - Particulates Not Otherwise Regulated or Nuisance Dust OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=10mg/m ³ total dust (PNOR) ACGIH TLV-TWA=10mg/m ³ inhalable (PNOS) PNOS – Particulates Not Otherwise Specified ACGIH TLV-TWA=3mg/m ³ respirable (PNOS) | None |
| Boric Acid H₃BO₃ #10043-35-3 | Not more than 10% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=5mg/m ³ ACGIH TLV-TWA=2mg/m ³ ACGIH TLV-STEL=6mg/m ³ (inhalable fraction – Borate Compounds, inorganic) | None |
| Ammonium Sulfate (NH₄)₂SO₄ #7783-20-2 | Not more than 11% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=10mg/m ³ total dust (PNOR) ACGIH TLV-TWA=10mg/m ³ inhalable (PNOS) ACGIH TLV-TWA=3mg/m ³ respirable (PNOS) | None |
| Mono-Ammonium Phosphate NH₄H₂PO₄ #7722-76-1 | Not more than 2% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=10mg/m ³ total dust (PNOR) ACGIH TLV-TWA=10mg/m ³ inhalable (PNOS) ACGIH TLV-TWA=3mg/m ³ respirable (PNOS) | None |
| Zinc Sulfate ZnSO₄·H₂O #7446-19-7 | Not more than 2% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=10mg/m ³ total dust (PNOR) ACGIH TLV-TWA=10mg/m ³ inhalable (PNOS) ACGIH TLV-TWA=3mg/m ³ respirable (PNOS) | None |
| Unmodified Starch #9005-25-8 | Not more than 3% | OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable fraction (PNOR) Cal OSHA PEL=10mg/m ³ total dust (PNOR) ACGIH TLV-TWA=10mg/m ³ inhalable (PNOS) ACGIH TLV-TWA=3mg/m ³ respirable (PNOS) | None |

Boric acid is classified as hazardous under the OSHA Hazard Communication Standard based on animal chronic toxicity studies. Refer to Sections 3 and 11 for details on hazards.

| HMIS Rating | | National Fire Protection Association (NFPA) | |
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| Health | 1 | Red (Flammability) | 1 |



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| Flammability | 1 | Yellow (Reactivity) | 0 |
| Reactivity | 0 | Blue (Acute Health) | 1* |
| Personal Protection | E | *Chronic Effects | |

SECTION 3 – HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Avoid extreme heat and open flame. May emit carbon monoxide gas, boric acid and other hazardous particulates during thermal decomposition. This product is a finely divided, light gray / brown material with no perceptible odor. It presents no unusual hazard if involved in a fire.

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| Physical Characteristics | |
| Boiling Point (F) | Not applicable |
| Vapor Pressure (mm Hg) | Not applicable |
| Vapor Density | Not applicable |
| Solubility in Water | Insoluble; dispersible |
| Specific Gravity (H₂O=1) | Not applicable |
| Reactivity in Water | None |
| Melting Point | Not applicable |

| | |
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| Potential Health Effects | |
| Inhalation | Slightly irritating to upper respiratory system. Persons with respiratory problems should avoid breathing dust. |
| Eyes | Slight irritant. In case of eye contact, flush with water. |
| Ingestion | Small amounts are not likely to cause harm. Ingestion of large amounts may cause rash, diarrhea, nausea. |
| Skin | Does not normally irritate skin. In case of broken skin, wear gloves and wash dust from skin with soap and plenty of water. Large amounts absorbed into bloodstream may cause rash, skin peeling, diarrhea, nausea, dizziness. |
| Acute | Not anticipated as discussed above. |
| Chronic | None. |
| Cancer | Neither the end product nor any of its components. |

SECTION 4 – FIRST AID

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| Eyes | For dust exposure, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists. |
| Skin | If skin is exposed, wash with soap and large amounts of water. If irritation persists, seek medical attention. |
| Inhalation | If irritation or difficulty in breathing occurs, remove to fresh air. Seek medical attention if condition persists. |
| Ingestion | Symptoms may include diarrhea, nausea and vomiting. Seek medical attention if material was ingested and symptoms occur. |
| Note to Physicians | Exposure to dust may aggravate symptoms of persons with pre-existing respiratory tract conditions and may cause skin and gastrointestinal symptoms. |

SECTION 5 – FIRE FIGHTING MEASURES

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| Flash Point (Method Used) | Not applicable |
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| Combustible | Material may decompose on contact with extreme temperatures and open flames. |
| Flammable Limits | LEL: Not applicable UEL: Not applicable |
| Autoignition Temperature | Not determined |
| Explosion Hazard | None expected for product based on particle size. Note: Airborne concentrations of combustible dust, when combined with an ignition source, can create an explosion hazard if the dust concentration exceeds 15 mg/m ³ . |
| Extinguishing Media | Water, dry chemical and other agents rated for a wood fire (Type A fire). Use Type A rated extinguisher. |
| Fire Fighting Instructions | Evacuate the area and notify the fire department. If possible, isolate the fire by moving other combustible materials. If the fire is small, use a hose-line or extinguisher rated for a Type A fire. If possible, dike and collect water used to fight fires. Fire-fighters should wear normal protective equipment (full bunker gear) and positive-pressure, self-contained breathing apparatus. |

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Contains water-soluble inorganic mineral salts which may damage trees or vegetation exposed to large quantities. **Land:** shovel, sweep or vacuum product. Place in disposal container. Avoid bodies of water. **Water:** large quantities may cause localized contamination of surrounding waters depending on the quantity spilled. At high concentrations may damage localized vegetation, fish and other aquatic life. This product is a non-hazardous waste when spilled or disposed of as defined in the Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261). Refer to regulatory information in Section 15 for additional information regarding EPA and California regulations.

SECTION 7 – HANDLING AND STORAGE

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| General | No special handling is required. Storage of sealed bags in a dry, indoor location is recommended. To maintain product integrity, handle on a "first-in-first-out" basis. Use good housekeeping and engineering controls so that dust levels are below the exposure limits listed in Section 2. |
| Storage Temperature | Ambient |
| Storage Pressure | Atmospheric |
| Special Sensitivity | None |

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

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| General Exposure Controls | No specific controls are needed. Use standard good housekeeping practices and engineering controls to minimize nuisance levels. |
| Respiratory Protection | If housekeeping and engineering controls do not maintain nuisance levels below regulatory limits or dust concentration is unknown, use a NIOSH-approved mask. |
| Eye Protection | Wear ANSI-approved eye protection if environment is excessively dusty. |
| Hand Protection | If skin is broken or sensitive, use gloves |
| Other Protective Clothing | None |
| Ventilation | Normal and adequate ventilation |
| Work/Hygienic Practices | Standard hygienic practices |
| Occupational Exposure Limits | <i>This product is listed/regulated by OSHA and Cal/OSHA as "Particulates Not Otherwise Regulated" or "Nuisance Dust." This product is list by ACGIH as "Particulates Not Otherwise Specified."</i> |



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SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance | Gray / Brown, odorless fiber | Boiling/Melting Point | Not applicable |
| Bulk Density | 9 lb/ft ³ compressed | Flash Point | Not applicable |
| Vapor Pressure | Negligible @ 20° C | pH | <8.2 (2.0% suspension @ 25° C |
| Solubility in Water | Product is not soluble | Viscosity | Not applicable |

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur

Conditions and Materials to Avoid: Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard. Keep away from strong oxidizers, such as concentrated nitric acid, hydrogen peroxide and chlorine.

SECTION 11 – TOXICOLOGICAL INFORMATION

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| BORIC ACID | |
| Eye | Draize test in rabbits produced mild eye irritation effects. No adverse eye effects anticipated. |
| Skin | Low acute dermal toxicity, LD50 in rabbits is greater than 2,000 mg/kg of body weight. Boric Acid is poorly absorbed through skin. |
| Ingestion | Low acute oral toxicity, LD50 in rates is 3,500 to 4,100 mg/kg of body weight |
| Inhalation | Low acute inhalation toxicity; LC50 in rates is greater than 2.0 mg/L (or g/m ³). |
| Reproduction | Animal feeding studies in rat, mouse, and dog, at high doses, have demonstrated effects on fertility. |
| Mutagenicity | No mutagenic activity was observed for boric acid in a battery of short-term mutagenicity assays. |

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| AMMONIUM SULFATE | |
| Eye | None listed |
| Skin | None listed |
| Ingestion | TDLo, oral, human, 1500 mg/kg, diarrhea, nausea, vomiting, LD50, oral, rat, 2840 mg/kg |
| Inhalation | None reported |
| Subchronic | None reported |
| Chronic | None reported |
| Teratology | None reported |
| Reproduction | None reported |
| Mutagenicity | None reported |

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| MONOAMMONIUM PHOSOPHATE | |
| Eye | Irritation with the extent of damage depending on duration of contact |
| Skin | Contact dermatitis may follow repeated skin contact |
| Ingestion | With large doses there is the possibility of diuresis and systemic poisoning |
| Inhalation | None reported |
| Subchronic | None reported |
| Chronic | None reported |
| Teratology | None reported |
| Reproduction | None reported |
| Mutagenicity | None reported. |



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| ZINC SULFATE | |
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| Eye | Dose-420 ug; moderate (rabbit) |
| Acute Exposure | LD 50: 1710 mg/kg, oral, rat LD 50: 245 mg/kg, oral, mouse |
| Chronic | No known ingestion reaction anticipated |
| Teratology | May cause inhalation reflex bronchoconstriction |

| STARCH | |
|---------------------|----------------|
| Eye | None reported. |
| Skin | None reported |
| Ingestion | None reported |
| Inhalation | None reported |
| Chronic | None reported |
| Teratology | None reported |
| Reproduction | None reported |
| Mutagenicity | None reported. |

SECTION 12 – ECOLOGICAL INFORMATION

| BORIC ACID | |
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| Ecotoxicity | Daphnia magna, 48-hr LC50=133 mg B/L. Trout, 32-day LC50=100 mg B/L |
| Chemical Fate Information | Boron is naturally occurring and ubiquitous in the environment. Boric Acid decomposes in the environment to natural borate. Boric Acid is soluble in water and is leachable through normal soil. |

| AMMONIUM SULFATE | |
|----------------------------------|-----------------------------------|
| Ecotoxicity | TLm, Daphnia magna, 423 mg/L/24H. |
| Chemical Fate Information | Not listed. |

| ZINC SULFATE | |
|----------------------------------|--|
| Ecotoxicity | LC 50 rainbow trout: 4.76 MG/L/48 HR, hard water / continuous flow conditions LC 50 rainbow trout: 4.6 ppm/96 hr/fresh water / conditions of bioassay not specified |
| Chemical Fate Information | No data available for degradability, Log Bioconcentration Factor or Log Octanol/Water partition coefficient |

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose as a non-hazardous waste.

SECTION 14 – TRANSPORT INFORMATION

May be shipped normally as a non-hazardous material.

SECTION 15 – REGULATORY INFORMATION



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Superfund: CERCLA/SARA. This product is not listed under the Comprehensive Environmental Response Compensation and Liability Act(CERCLA) or its 1986 amendments, the Superfund Amendments and Reauthorization Act (SARA), including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023, 40 CFR 372.65; Section 302 of SARA Extremely Hazardous Substances, 42 USC 11002, 40 CFR 355; or the CERCLA Hazardous Substances list, 42 USC 9604, 40 CFR 302.

RCRA: This product is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act or regulations (40 CFR 261 et seq.).

Safe Drinking Water Act: This product is not regulated under the SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories regarding boron and ammonia.

California Proposition 65: This product is not listed on any Proposition 65 lists of carcinogens or reproductive toxicants.

OSHA Carcinogen: Not listed.

Clean Water Act (Federal Water Pollution Control Act): 33 USC 1251 et seq.: This product is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314. This product is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 116. This product is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

TSCA No.: This product does not appear on the EPA TSCA inventory list. Ammonium sulfate and boric acid appear on the EPA TSCA inventory list under the CAS Nos. 7783-20-2 and 10043-35-3 respectively.

OSHA/Cal/OSHA: This MSDS document meets the requirements of both OSHA and Cal/OSHA hazard communication standards. Refer to Section 8 for regulatory exposure limits.

IARC: The International Agency for Research on Cancer (of the World Health Organization) does not list or categorize this product as a carcinogen.

NTP Annual Report on Carcinogens: Not listed.

SECTION 16 – OTHER INFORMATION

INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED DEPENDABLE AND IS ACCURATE AND RELIABLE TO THE BEST OF OUR KNOWLEDGE AND BELIEF, BUT IS NOT GUARANTEED TO BE SO. NOTHING HEREIN IS TO BE CONSTRUED AS RECOMMENDING ANY PRACTICE OR ANY PRODUCT IN VIOLATION OF ANY PATENT OR IN VIOLATION OF ANY LAW OR REGULATION. THE USER IS RESPONSIBLE TO DETERMINE THE SUITABILITY OF ANY MATERIAL FOR A SPECIFIC PURPOSE AND ADOPT NECESSARY SAFETY PRECAUTIONS. WE MAKE NO WARRANTY AS TO RESULTS TO BE OBTAINED IN USING ANY MATERIAL AND, SINCE CONDITIONS OR USE ARE NOT UNDER OUR CONTROL, WE MUST NECESSARILY DISCLAIM ALL LIABILITY WITH RESPECT TO USE OF ANY MATERIAL SUPPLIED BY US.

ABBREVIATIONS

| | | | |
|-------------------------|---|------------------------|--|
| CAS | Chemical Abstract Services (identifies specific chemical) | OSHA | Occupational Safety and Health Administration |
| mg/m³ | Milligrams per cubic meter | PNOR | Particulates Not Otherwise Regulated |
| LCLo | Lethal concentration low | PNOS | Particulates Not Otherwise Specified |
| LDLo | Lethal dose low | PEL | OSHA Permissible Exposure Limit |
| LC50 | Lethal concentration 50% | ppm | Parts per million |
| LD50 | Lethal dose 50% | RfD | Reference Dose |
| LOAEL | Lowest Observed Adverse Effect Level | RTECS | Registry of Toxic Effects of Chemical Substances |
| mg/l/H | Milligrams per liter per hour | TDL_o | Toxic dose low |



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| mg/kg | Milligrams per kilogram | TLV | ACGIH Threshold Limit Value |
| mg/ m³ | Milligrams per cubic meter | TWA | 8 hour Time Weighted Average exposure |

BIBLIOGRAPHY

1. The Guide to Occupational Exposure Values, American Conference of Governmental Industrial Hygienists, 1997.
2. Registry of Toxic Effects of Chemical Substances, National Institute of Occupational Safety and Health, Q-1, 1998.
3. Dangerous Properties of Industrial Materials, Sax's, 1997 CD-Folio.
4. Hazardous Substances Data Bank, Canadian Centre for Occupational Health and Safety, Q-1, 1998.
5. Integrated Risk Information System, EPA, on-line.
6. Toxicological Profiles, Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, 1997.
7. TLVs and other Occupational Exposure Values, American Conference of Governmental Industrial Hygienists, 2010.
8. 29 CFR 1910.1000 TABLE Z-1 and Z-3
9. California OSHA Title 8, Section 5155, Table AC-1

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