



MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT AND COMPANY INFORMATION

PRODUCT IDENTIFIER: Cellulose Insulation, Stabilized Borate Formula

PRODUCT NAME: INST35 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) PNOC - 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 15%	OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable dust (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
Sodium Tetraborate Pentahydrate Na₂B₄O₇ · 5H₂O #11130-12-4	Not more than 10%	OSHA PEL-TWA=15mg/m ³ total dust (PNOR) OSHA PEL-TWA=5mg/m ³ respirable dust (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
Unmodified Starch #9005-25-8	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

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)	
Health	1	Red (Flammability)	1
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. Cocoon Insulation is a finely divided, light gray 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

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	None
Chronic	None
Cancer	Neither the end product nor any of its components.

SECTION 4 –FIRST AID

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

Flash Point (Method Used)	Not applicable
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	Evacuate the area and notify the fire department. If possible, isolate the fire by moving other



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Instructions	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.
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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

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

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>

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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: Greenfiber Insulation is a stable product.



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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

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 rats is 3,500 to 4,100 mg/kg of body weight
Inhalation	Low acute inhalation toxicity; LC50 in rats 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.

SODIUM TETRABORATE PENTAHYDRATE	
Eye	Draize test in rabbits produced mild eye irritation effects.
Skin	Low acute dermal toxicity; LD ₅₀ in rabbits is greater than 2000 mg/kg of body weight. Product is not absorbed through intact skin.
Ingestion	Low oral toxicity; LD ₅₀ in rats is 3500 mg/kg of body weight
Inhalation	Human epidemiological studies show no increase in pulmonary disease in occupational population with chronic exposures.
Mutagenicity	None observed
Carcinogenicity	No evidence from a full 2-year bioassay in mice fed doses of 2500 and 5000 ppm in the diet.
Reproductive / Developmental Toxicity	Animal studies indicate reduction in sperm production, testicular atrophy, and when given to pregnant animals during gestation, may cause developmental changes. Studies conducted under chronic exposure conditions leading to doses many times in excess of those that could occur through inhalation of dust in occupational settings.

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	
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.

SODIUM TETRABORATE PENTAHYDRATE
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Phytotoxicity	Although boron is an essential micronutrient for healthy growth of boron-sensitive plants, it can be harmful to plants in higher quantities.
Fish Toxicity	Boron naturally occurs in sea water at an average concentration of 5 mg B/Liter. In laboratory studies the acute toxicity (96-hr LC ₅₀) for under-yearling Coho Salmon in sea water was determined as 40 mg B/Liter. Boron concentrations in fresh surface waters are generally less than 1 mg B/Liter.
Environmental Fate Data	Boron and boron containing compounds, such as sodium tetraborate pentahydrate, are naturally occurring and ubiquitous in the environment. In the presence of water, sodium borate pentahydrate disassociates into natural borates. The product is soluble in water and is leachable through normal soil.

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

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	TDLo	Toxic dose low
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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