



MATERIAL SAFETY DATA SHEET
 UNIVERSAL FOREST PRODUCTS®, INC.
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SECTION 1 – PRODUCT IDENTIFICATION

PRODUCT NAME:	ProWood® BORATE
SYNONYMS:	Lumber and plywood treated with borate solution
DESCRIPTION:	Solid wood: dimensional lumber and plywood, may be assembled as structural lumber
PURPOSE:	Interior use, same as untreated wood
PREPARED BY:	Legal Compliance Department
IN CASE OF EMERGENCY:	Company: (800) 598-9663 Chemtrec: (800) 424-9300

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS #	Hazardous Component	Percent ¹
N/A	Wood/Wood dust	90-99.5
12280-03-4	Disodium Octaborate Tetrahydrate	<2
50-00-0	Formaldehyde ²	0-8

¹The above values may vary due to the variability of treatment and the natural variability of wood

²Formaldehyde present only in those products bonded with formaldehyde based glues

SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid wood, natural color	Specific Gravity:	0.40 - 0.80 (water=1)
Odor:	Wood odor	Vapor Pressure:	Negligible at 20°C
Boiling Point:	Not Applicable	Vapor Density:	Not Available
Melting Point:	Not Applicable	Density:	Not Available
Freezing Point:	Not Applicable	% Volatile by Volume:	Not Available
Weight per Gallon:	Not Applicable	Solubility (H ₂ O):	Not Applicable
Evaporation Rate:	Not Applicable	Reactivity (H ₂ O):	Not Applicable

SECTION 4 – FIRE AND EXPLOSION HAZARD

Flash Point	Method	Upper/Lower Flammable Limit	Auto-ignition	Rate of Burn	Classification
Not Applicable	Not Applicable	Lower: 40.0 g dust/m ³ air	Not Available	Not Available	Combustible

Unusual Fire and Explosion Hazards: Same hazards as untreated wood. Wood dust is combustible, and may form explosive mixtures with air in the presence of an ignition source. The presence of borate may slightly reduce the flammability hazard. Thermal decomposition products include CO, CO₂, aliphatic aldehydes, resin acids and polycyclic aromatic hydrocarbons.

Fire Fighting Equipment and Extinguishing Media: Use water to wet down wood to reduce the likelihood of ignition. Fire fighters should use full protective clothing including self-contained breathing apparatus. Use water, fog, CO₂, or dry chemical.

NFPA Codes:	Health	0	HMIS Codes:	Health	1
	Flammability	1		Flammability	1
	Reactivity	0		Reactivity	0
	Other	N/A		Protection	N/A

SECTION 5 – HEALTH HAZARDS AND FIRST AID

CAUTION! Wood dust may form an explosive mixture with air, use exhaust ventilation when cutting, sawing or grinding in an enclosed area. Wood dust may cause irritation to eyes, skin, and upper respiratory tract. When cutting, sanding, or grinding avoid inhalation and wear safety glasses. Handling may cause splinters, use puncture resistant gloves.

	Signs and symptoms of acute overexposure	First Aid Measures
Eyes:	Wood dust may cause irritation to the eyes. Symptoms can include irritation, redness, scratching of the cornea, and tearing.	Immediately flush eyes with water for at least 15 minutes. Seek medical attention if symptoms persist
Skin:	Wood dust may cause irritation to the skin. Mechanical rubbing may increase skin irritation. Some wood species and their dusts may contain natural toxins, which may cause dermatitis or allergic reactions in sensitized individuals.	For skin contact flush immediately with soap and water, continue at least 15 minutes. If irritation persists, get medical attention immediately. If wood splinters are injected under the skin, get medical attention immediately.
Ingestion:	If ingestion does occur, slight gastrointestinal irritation may result. Certain species of wood and their dusts may contain natural toxins, which can have adverse effects on humans.	If the material is swallowed, get medical attention or advice. Do not induce vomiting.
Inhalation:	Wood dust is irritating to the nose throat and lungs. Symptoms may include nasal dryness, deposits or obstructions in the nasal passages, coughing, sneezing, dryness and soreness of the throat and sinuses, hoarseness, and wheezing. Prolonged or repeated inhalation of wood dusts may cause respiratory irritation, recurrent bronchitis, and prolonged colds. Some species may cause allergic respiratory reactions with asthma-like symptoms in sensitized individuals. Prolonged exposure to wood dust by inhalation has been reported to be associated with nasal and paranasal cancer.	If dusts are inhaled, remove person to fresh air. If symptoms persist, seek medical attention.

Note to Physician: Respiratory ailments and pre-existing skin conditions may be aggravated by exposure to wood dust. The presence of borate chemical is not expected to affect the toxicity. Dermal and inhalation are the primary routes of exposure to wood dust in occupational settings.

Medical Conditions Generally Aggravated by Exposure to Wood Dust: Pre-existing eye, respiratory system and skin conditions.

Ecological Information: This product is designed for indoor use. No data is available for ecological impacts.

Chronic Overexposure: Wood dusts may be irritating to the eyes, skin and respiratory tract. Prolonged or repeated inhalation of wood dust may cause respiratory irritation, recurrent bronchitis, and prolonged colds. Depending on the species of wood, recurrent exposure may cause allergic skin and respiratory reactions in some individuals or aggravate pre-existing respiratory conditions or allergies.

Carcinogenicity: The principal health effects reported from occupational exposure to wood dust from untreated wood are dermatitis, rhinitis, conjunctivitis, reduced or suppressed mucociliary rates, chronic obstructive lung changes, and nasal sinus cancer. Wood dust is classified as a carcinogen by ACGIH, NIOSH, and IARC. This classification is based on an increased incidence of nasal and paranasal cancer in people exposed to wood dusts. Carcinogenicity of wood dust: ACGIH – A1 Confirmed Human Carcinogen (related to wood dusts-hard wood); NIOSH – Occupational carcinogen (related to wood dust); IARC – Monograph 62, 1995 (related to wood dust)(Group 1 (carcinogenic to humans)). IARC has listed formaldehyde as a probable human carcinogen. No mutagenic activity was observed for boric acid in short-term mutagenicity assays.

SECTION 6 – EXPOSURE CONTROL MEASURES/PERSONAL PROTECTION

Personal Protective Equipment

- Eyes/Face:** Wear Safety glasses with side shields when handling, cutting, sanding, or grinding this material. Use a face shield for processes that may generate excessive dusts and splinters
- Skin:** Wear puncture resistant work gloves, such as leather when handling
- Respiratory:** Respirators must be worn if the ambient concentration of airborne contaminants exceeds prescribed exposure limits. Dust masks may be worn to avoid inhalation of nuisance dust. Dust masks are not adequate protection in environments above the occupational exposure limit.
- Ventilation:** Cutting, grinding or sanding should be done outdoors or in a well ventilated area.

Component Exposure Limits*

Component	OSHA		ACGIH	
	PEL	STEL	TLV	TLV STEL
**Wood/Wood dust	15 mg/m ³ total dust 5 mg/m ³ respirable fraction (as a nuisance dust)	N/A	1 mg/m ³ TWA	10 mg/m ³ TWA
Dry Boron Compounds	15 mg/m ³ total dust 5 mg/m ³ respirable fraction (as a nuisance dust)	N/A	10 mg/m ³ total dust (PNOC)	N/A
Formaldehyde	0.75 ppm	2 ppm	0.3 ppm	N/A

**A state run OSHA program may have more stringent limits for wood dust and/or PNOR.

SECTION 7 – SAFE HANDLING, STORAGE, DISPOSAL, AND ACCIDENTAL RELEASE MEASURES

Handling Procedures:

- Do not generate airborne dusts in the presence of an ignition source when sawing, cutting or grinding wood.
- Wash hands after handling and before eating.
- Avoid contact of wood dusts with skin and eyes. Avoid breathing wood dusts.
- Do not eat, drink, or smoke when handling this product or in areas where dusts of this product are present.
- Avoid contact with oxidizing agents and drying oils.

Storage Procedures

- Store borate treated lumber and plywood off the ground in a dry place protected from the weather.
- While at the job site cover with plastic tarps, allowing for adequate air circulation.
- Maintain good housekeeping procedures, such as sweeping regularly to avoid accumulation of dusts.
- Store away from excessive heat, sparks, and open flame.

Disposal Procedures

- Dispose of waste material in an approved landfill according to local, State, and Federal Regulations.

Accidental Release Measures

- No containment procedures are needed as this is a solid product and is not likely to spill or leak the preservative.

SECTION 8 – HUMAN AND ECOLOGICAL TOXICITY

Disodium Octaborate Tetrahydrate	
Toxicity	Inhalation LC50 Rat: >2.0 g/m ³ Oral LD50 Rat: 2,550 mg/kg Skin: LD50 in Rabbits: >2000 mg/kg
Aquatic Toxicity	LC50 (96 hr) Dab: 74 mg/L LC50 (24 day) rainbow trout: 88 mg/L (juveniles) LC50 (32 day) rainbow trout: 54 mg/L (juveniles) LC50 (7 day) Goldfish: 65 mg/L LC50 (3 day) Goldfish: 71 mg/L LC50 (24 hr) Daphnia magna straus: 242 mg/l LC50 (96 hr) Daphnia magna straus: 24 mg/l
Environmental Fate	Boron is naturally occurring and ubiquitous in the environment and a micronutrient for plants; however it can be harmful to boron sensitive plants. This chemical decomposes into natural borate. This chemical is soluble in water and is leachable through normal soil.
Formaldehyde	
Toxicity	LC50 Rat: 203 mg/m ³ Oral LD50 Rat: 0.8 g/kg Skin Irritation, Rabbit: 0.27 g/kg
Aquatic Toxicity	Not Available

SECTION 9 – REGULATORY INFORMATION

OSHA (29 CFR 1910.1200): This Product is not Regulated under the Hazard Communication Standard
DOT Hazardous Material Classification: This material is not regulated as a hazardous material by DOT

NOTICE: THE INFORMATION AND RECOMMENDATIONS SET FORTH ARE BELIEVED TO BE ACCURATE. HOWEVER, UNIVERSAL FOREST PRODUCTS®, INC., MAKES NO WARRANTY WITH RESPECT TO AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON THE INFORMATION.