

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: 1-800-TEC-WOOD (832-9663) or www.frtw.com

CERTIFICATION for *PYRO-GUARD*[®] Interior Fire Retardant Treated Wood

PART 1 – GENERAL

1.01 PRODUCT IDENTIFICATION

- A. Lumber and plywood bearing the *PYRO-GUARD*[®] mark has a flame spread rating of 25 or less (Class A) when tested in accordance with ASTM E 84, “Standard Test Method for Surface Burning Characteristics of Building Materials”. *PYRO-GUARD*[®] fire retardant treated wood shows no evidence of significant progressive combustion when the test is extended for an additional 20 minute period. In addition, the flame front shall not progress more than 10½ feet beyond the centerline of the burners at any time during the test. The flame spread and smoke developed index for each species and product are classified by Underwriters Laboratories Inc (UL).
- B. *PYRO-GUARD*[®] Fire retardant treated lumber and plywood is manufactured under the independent third party inspection of Underwriters Laboratories Follow-Up Service and each piece shall bear the UL classified mark indicating the extended 30 minute ASTM E 84 test.
- C. *PYRO-GUARD*[®] shall be labeled kiln dried after treatment (KDAT). Timber Products Inspection, Inc. (TP) shall monitor the process and the TP mark shall appear on the label.
- D. *PYRO-GUARD*[®] shall be produced in accordance with ICC Evaluation Service Report 1791 (ESR-1791).
- E. *PYRO-GUARD*[®] meets the performance requirements of AWPA U1, Commodity Specification H for Use Category UCFA and AWPA C20/C27 (Type A, HT).
- F. *PYRO-GUARD*[®] is listed on the Department of Defense (DoD) Qualified Products List (QPL) and meets the requirements of MIL-L-19140-E as a Type 1 fire retardant treatment.

PART 2 – PRODUCTS

2.01 FIRE RETARDANT TREATMENT

- A. Treatment shall be *PYRO-GUARD*[®] manufactured by Hoover Treated Wood Products, Inc.
- B. Structural performance of *PYRO-GUARD*[®] fire retardant treated wood has been evaluated in accordance with ASTM D 5664 for lumber and ASTM D 5516 for plywood. Evaluation of plywood data is in accordance with ASTM D 6305. The resulting design value and span rating adjustments are published in ICC Evaluation Report ESR-1791, issued by the ICC Evaluation Service Inc. which includes evaluation of high temperature (**HT**) strength testing for roof applications.
- C. lumber and plywood with individual
- D. *PYRO-GUARD*[®] Interior fire retardant treated wood is kiln dried after treatment to maximum moisture content of 19% for lumber and 15% for plywood.
- E. *PYRO-GUARD*[®] does not contain halogens, sulfates, chlorides, ammonium phosphate, urea formaldehyde or formaldehyde.
- F. Plywood treated with *PYRO-GUARD*[®] shall be manufactured under US Product Standard PS 1or PS 2. Panels shall have a minimum bond durability of Exposure 1.
- G. Grade marked lumber treated with *PYRO-GUARD*[®] shall be in accordance with PS 20.

3.02 APPLICATION

- A. *PYRO-GUARD*[®] fire retardant treated lumber and plywood used in structural applications shall be installed in accordance with the conditions and limitations listed in ESR-1791 as issued by the ICC Evaluation Service, Inc.
- B. *PYRO-GUARD*[®] fire retardant treated lumber and plywood shall be installed in compliance with the requirements of the applicable building codes and product recommendations.
- C. Treated wood shall not be installed in areas where it is exposed to precipitation, direct wetting, or regular condensation.
- D. As with untreated wood avoid exposure to precipitation during shipping, storage or installation. Apply underlayment over dry sheathing as soon as practical to avoid direct rain on the panel. Panels that get wet should be allowed to dry before applying underlayment, or replaced.

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

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- D. *PYRO-GUARD*[®] shall be produced in accordance with ICC Evaluation Service Report 1791 (ESR-1791).
- E. *PYRO-GUARD*[®] meets the performance requirements of AWPA U1, Commodity Specification H for Use Category UCFA and AWPA C20/C27 (Type A, HT).
- F. *PYRO-GUARD*[®] is listed on the Department of Defense (DoD) Qualified Products List (QPL) and meets the requirements of MIL-L-19140-E as a Type 1 fire retardant treatment.

PART 2 – PRODUCTS

2.01 FIRE RETARDANT TREATMENT

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- B. Structural performance of *PYRO-GUARD*[®] fire retardant treated wood has been evaluated in accordance with ASTM D 5664 for lumber and ASTM D 5516 for plywood. Evaluation of plywood data is in accordance with ASTM D 6305. The resulting design value and span rating adjustments are published in ICC Evaluation Report ESR-1791, issued by the ICC Evaluation Service Inc. which includes evaluation of high temperature (HT) strength testing for roof applications.
- C. *PYRO-GUARD*[®] Interior fire retardant treated wood is kiln dried after treatment to maximum moisture content of 19% for lumber and 15% for plywood.
- D. *PYRO-GUARD*[®] does not contain halogens, sulfates, chlorides, ammonium phosphate, urea formaldehyde or formaldehyde.
- E. Plywood treated with *PYRO-GUARD*[®] shall be manufactured under US Product Standard PS 1 or PS 2. Panels shall have a minimum bond durability of Exposure 1.
- F. Grade marked lumber treated with *PYRO-GUARD*[®] shall be in accordance with PS 20.

3.02 APPLICATION

- A. *PYRO-GUARD*[®] fire retardant treated lumber and plywood used in structural applications shall be installed in accordance with the conditions and limitations listed in ESR-1791 as issued by the ICC Evaluation Service, Inc.
- B. *PYRO-GUARD*[®] fire retardant treated lumber and plywood shall be installed in compliance with the requirements of the applicable building codes and product recommendations.
- C. Treated wood shall not be installed in areas where it is exposed to precipitation, direct wetting, or regular condensation.
- D. As with untreated wood avoid exposure to precipitation during shipping, storage or installation. Apply underlayment over dry sheathing as soon as practical to avoid direct rain on the panel. Panels that get wet should be allowed to dry before applying underlayment, or replaced.

ICC-ES Evaluation Report**ESR-1791**

Reissued March 1, 2009

This report is subject to re-examination in two years.www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 06—WOOD AND PLASTICS
Section: 06070—Wood Treatment**REPORT HOLDER:****HOOVER TREATED WOOD PRODUCTS, INC.**
154 WIRE ROAD
THOMSON, GEORGIA 30824
(706) 595-7355
www.frtw.com**EVALUATION SUBJECT:****PYRO-GUARD® FIRE-RETARDANT-TREATED WOOD****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Flame spread
- Structural
- Corrosion
- Hygroscopicity

2.0 USES

PYRO-GUARD® fire-retardant-treated wood is used in areas not exposed to the weather or wetting where the code permits the use of wood or fire-retardant-treated wood.

3.0 DESCRIPTION**3.1 General:**

PYRO-GUARD® fire-retardant-treated wood is lumber and plywood that is pressure impregnated with the Hoover Treated Wood Products, Inc., fire retardant chemical PYRO-GUARD®. PYRO-GUARD® fire-retardant-treated lumber and plywood is produced in accordance with an approved quality control procedure at facilities listed in Section 5.6 of this report.

PYRO-GUARD® treated lumber of the following species is recognized as being fire-retardant-treated wood: alpine fir, balsam fir, black spruce, Douglas fir, Englemann spruce, hem-fir, jack pine, lodgepole pine, ponderosa pine, red spruce, southern pine, spruce-pine-fir (SPF), western hemlock, white fir, and white spruce.

PYRO-GUARD® treated plywood fabricated with face and back veneers of the following species is recognized as being fire-retardant-treated wood: southern pine and Douglas fir for structural applications, and lauan for interior applications.

3.2 Flame Spread:

PYRO-GUARD® fire-retardant-treated lumber and plywood have a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84, as modified by IBC Section 2303.2 and IRC Section R802.1.

3.3 Structural Strength:

The structural performance of PYRO-GUARD® fire-retardant-treated wood has been evaluated using ASTM D 5516 and D 6305 for plywood and ASTM D 5664 and D 6841 for lumber. The effects of the PYRO-GUARD® chemical treatment on the strength of treated lumber must be accounted for in the design of wood members and their connections. Load-duration factors greater than 1.6 must not be used in design.

3.3.1 Lumber: The design value adjustments in Table 2 must be used to modify the design values for untreated lumber found in the AF&PA National Design Specification (NDS) Supplement Design Values for Wood Construction, for the applicable species, use and property. Southern pine and Douglas fir have been evaluated for use in roof framing and must be subjected to the adjustments indicated in Table 2 for roof framing. Other softwood species described in Section 3.1 must be subjected to the design adjustments indicated in Table 2 for service temperatures up to 100°F (38°C).

3.3.2 Plywood: The maximum loads and spans shown in Table 1 must be used to modify the panel span rating for untreated plywood described in the applicable codes, as determined by thickness and construction. The adjusted maximum loads and spans are based on tests of southern pine and Douglas fir and are applicable to all softwood species.

3.4 Corrosion:

The corrosion rate of aluminum, carbon steel, galvanized steel, copper or red brass in contact with wood is not increased by PYRO-GUARD® fire-retardant treatment when the product is used as recommended by Hoover Treated Wood Products, Inc.

3.5 Hygroscopicity:

The moisture content of PYRO-GUARD® fire-retardant-treated lumber and plywood is less than 28 percent when

evaluated in accordance with ASTM D 3201 at 92 percent relative humidity (Section 2303.2.4 of the IBC). PYRO-GUARD® is suitable for use in interior conditions where sustained relative humidity is 92 percent or less and condensation does not occur.

4.0 DESIGN AND INSTALLATION

4.1 General:

Structural systems that include PYRO-GUARD® fire-retardant-treated lumber or plywood must be designed and installed in accordance with the applicable code using the appropriate lumber design value adjustment factors and plywood spans from Tables 1 and 2 of this report. Ventilation must be provided in compliance with the applicable codes.

The design value adjustment factors and plywood spans in Tables 1 and 2 of this report are applicable under elevated temperatures resulting from cyclic climatic conditions in the continental United States. They are not applicable under continuous elevated temperatures resulting from manufacturing or other processes which must require special consideration in design. Such conditions are outside the scope of this report.

All of the wood species listed in Section 3.1 of this report are permitted for interior applications and have been evaluated for structural performance for interior applications where the service temperature does not exceed 100°F (37.8°C). Southern pine and Douglas fir have been evaluated for structural performance for roof framing applications as indicated in Table 2 of this report. Southern pine and Douglas fir plywood are permitted for structural applications limited to the spans and loads indicated in Table 1 of this report.

Exposure to precipitation during storage or installation must be avoided. If material does become wet, it must be replaced or permitted to dry (maximum 19 percent moisture content for lumber and 15 percent moisture content for plywood) prior to covering or enclosure by wallboard or other construction materials (except for protection during construction).

4.2 Fasteners:

Fasteners used in PYRO-GUARD® fire-retardant-treated wood must be in accordance with IBC Section 2304.9.5, IRC Section R319.3, or other corrosion-resistant materials that are manufactured from materials listed in Section 3.4 of this report, and must be subject to the design value adjustments indicated in Table 2 of this report.

5.0 CONDITIONS OF USE

The PYRO-GUARD fire-retardant-treated wood described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Strength calculations must be subject to the design value adjustment factors and span ratings shown in Tables 1 and 2 of this report.
- 5.2 The design value adjustment factors and span ratings given in this report must only be used for unincised dimensional lumber and plywood of the species noted in this report.
- 5.3 PYRO-GUARD treated wood must not be installed where it will be exposed to weather or damp or wet conditions.
- 5.4 PYRO-GUARD treated wood must not be used in contact with the ground.
- 5.5 Except for the following, PYRO-GUARD lumber must not be ripped or milled, as this will alter the surface-burning characteristics and invalidate the flame-spread classification: end cuts, holes, and joints such as tongue and groove, bevel, scarf and lap. PYRO-GUARD plywood may be cut or ripped in any direction.
- 5.6 Treatment is at the facilities of Hoover Treated Wood Products, Inc., in Thomson, Georgia; Pine Bluff, Arkansas; Milford, Virginia; Detroit, Michigan; and Winston, Oregon; under a quality control program with inspections by Timber Products Inspection Inc. (AA-696).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Fire-retardant-treated Wood (AC66), dated February 2006.

7.0 IDENTIFICATION

Lumber and plywood treated with PYRO-GUARD® fire-retardant chemicals must be identified by the structural grade mark of an approved agency. In addition, all treated lumber and plywood must be stamped with the name of the inspection agencies [Underwriters Laboratories Inc. (AA-668) and Timber Products Inspection Inc. (AA-696)], the Hoover Treated Wood Products, Inc. or listee, name and treatment location, labeling information in accordance with Section 2303.2.1 of the IBC, and the evaluation report number (ESR-1791).

TABLE 1— MAXIMUM LOADS AND SPANS FOR PYRO-GUARD® TREATED PLYWOOD

PLYWOOD ⁹ THICKNESS (inches)	UNTREATED ROOF/SUBFLOOR SPAN RATING	PYRO-GUARD ^{® 1,2,3,4,5,8,11,12} ROOF SHEATHING MAX. LIVE LOAD (psf)				PYRO-GUARD ^{®2,10} SUBFLOOR Span (inches)
		Span (inches)	Climate Zone ^{6,7}			
			1A	1B	2	
¹⁵ / ₃₂ , ¹ / ₂	32/16	24	19	30	43	16
¹⁹ / ₃₂ , ⁵ / ₈	40/20	24 32	42 20	64 32	87 45	20 20
²³ / ₃₂ , ³ / ₄	48/24	32 48	34 10	51 18	71 27	24 24
⁷ / ₈	—	48	12	20	30	—
¹ / ₈	—	48	21	33	47	48

For SI: 1 inch = 25.4 mm, 1 psf = 48 N/m².

- All loads are based on two-span condition with panels 24 inches wide or wider, strength axis perpendicular to supports.
- Fastener size and spacing must be as required in the applicable building code for untreated plywood of the same thickness; except that roof sheathing must be fastened with (1) minimum 8d common or 8d deformed shank nails spaced a maximum 6 inches o.c. at edges and a maximum of 12 inches o.c. at intermediate supports for panels on 24- and 32-inch spans and spaced a maximum of 6 inches o.c. on all supports for panels on a 48-inch span, or (2) other fasteners with comparable withdrawal and lateral load capacities at the same maximum spacings. For ¹/₈-inch roof sheathing panels, minimum 10d common or deformed shank nails must be used.
- Roof spans and loads apply to roof systems having the minimum ventilation areas required by the applicable building code. Fifty percent of required vent area must be located on upper portion of sloped roofs to provide natural air flow.
- For low-sloped or flat roofs with membrane or built-up roofing having a perm rating less than 0.2, use rigid insulation having a minimum R value of 4.0 between sheathing and roofing, or use next thicker panel than tabulated for the span and load (e.g., ¹⁹/₃₂ for 24 inches, ²³/₃₂ for 32 inches); and use a continuous ceiling air barrier and vapor retarder with a perm rating less than 0.2 on the bottom of the roof framing above the ceiling finish.
- For unblocked roof diaphragms panel edge clips are required for roof sheathing: one midway between supports for 24-inch and 32-inch spans, two at ¹/₃ points between supports for 48-inch span. Clips must be specifically manufactured for the plywood thickness used.
- Tabulated loads for Zone 1A are based on a duration of load adjustment for 7-day (construction) loads of 1.25. Tabulated loads for Zone 1B and Zone 2 are based on a duration of load adjustment for snow of 1.15. All values within the table are based on a dead load (DL) of 8 psf. If the DL is less than or greater than 8 psf, the tabulated live load may be increased or decreased by the difference. Applicable material weights, psf: asphalt shingles - 2.0, ¹/₂-inch plywood - 1.5, ⁵/₈-inch plywood - 1.8, ³/₄-inch plywood - 2.2.
- Climate Zone definition:
 - Minimum design roof live load or maximum ground snow load up to 20 psf:
 - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
 - All other qualifying areas of the continental United States
 - Minimum ground snow load over 20 psf
- PYRO-GUARD[®] treated plywood must not be used as roof sheathing if a radiant shield is used beneath the roof sheathing.
- The ¹⁹/₃₂-inch and ⁵/₈-inch thickness are limited to performance rated 4-ply or 5-ply. ²³/₃₂- and ³/₄-inch thicknesses are limited to performance rated 5-ply or 7-ply.
- Subfloor applications are limited to 100 psf maximum live load, except ¹/₈-inch thickness on 48-inch span limited to 65 psf total load.
- Deflection of roof sheathing at tabulated maximum live load is less than ¹/₂₄₀ of the span, and under maximum live load plus dead load is less than ¹/₁₈₀ of the span.
- Staples used to attach asphalt shingles must be minimum ¹⁵/₁₆-inch crown and minimum 1-inch leg, or otherwise comply with the applicable code, with the quantity of fasteners adjusted in accordance with Table 2 of this report.

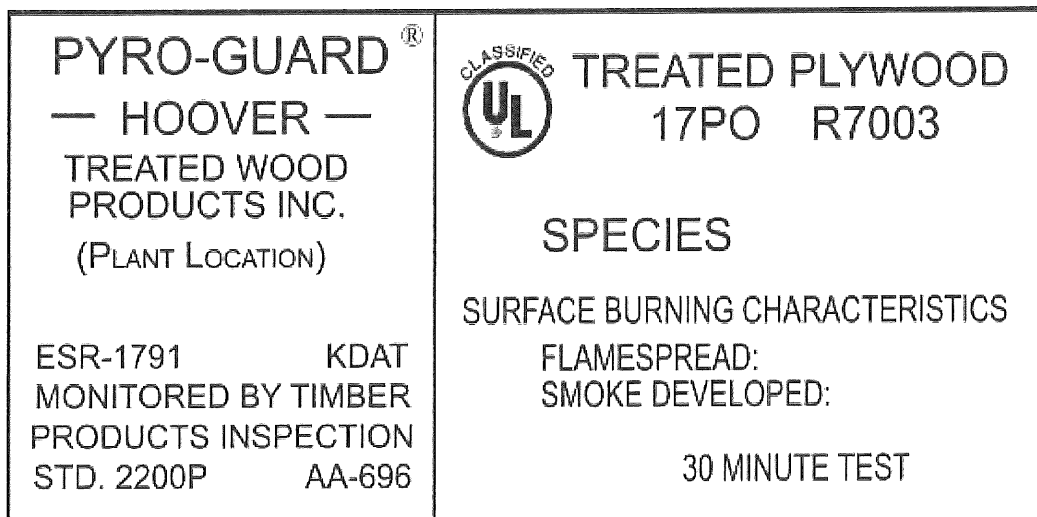


FIGURE 1—PLYWOOD STAMP

TABLE 2—DESIGN VALUE ADJUSTMENTS FOR PYRO-GUARD® TREATED LUMBER

PROPERTY	SERVICE TEMPERATURE ⁶ TO 100°F/38°C			PYRO-GUARD® ROOF FRAMING, CLIMATE ZONE ^{1,2,5}					
	SP	DF	Other	1A		1B		2	
				SP	DF	SP	DF	SP	DF
Extreme fiber in bending	0.91	0.97	0.88	0.80	0.90	0.85	0.93	0.89	0.96
Tension parallel to grain	0.88	0.95	0.83	0.80	0.80	0.84	0.87	0.88	0.93
Compression parallel to grain	0.94	1.00	0.94	0.94	0.94	0.94	0.98	0.94	1.00
Horizontal shear	0.95	0.96	0.93	0.92	0.95	0.93	0.95	0.94	0.96
Modulus of elasticity	0.95	0.96	0.94	0.95	0.96	0.95	0.96	0.95	0.96
Compression perp. to grain	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Fasteners/connectors	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90

- Climate Zone definition:
 - Minimum design roof live load or maximum ground snow load up to 20 psf:
 - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
 - All other qualifying areas of the Continental United States
 - Minimum ground snow load over 20 psf
- Duration of load adjustments for snow loads, 7-day (construction) loads, and wind loads given in the National Design Specifications for Wood Construction apply.
- Where lumber decking serves as both exposed ceiling and roof sheathing, extreme fiber in bending adjustments of 0.84, 0.83, and 0.89 must be used for southern pine in zones 1A, 1B, and 2, respectively; 0.92, 0.92, and 0.96 must be used for Douglas fir in zones 1A, 1B, and 2, respectively; except that where insulation having a minimum R value of 4.0 is installed above the decking, extreme fiber in bending adjustments of 0.91 for southern pine and 0.97 for Douglas fir are permitted in all zones.
- Modulus of elasticity values apply to all treated lumber decking.
- Roof framing adjustment factors apply to roof systems with minimum ventilation areas per applicable code. Locate 50 percent of required vent area on upper portion of sloped roofs to provide natural air flow.
- Species: SP - southern pine; DF - Douglas fir; Other softwoods - limited to those species listed in Section 3.1 of this report.

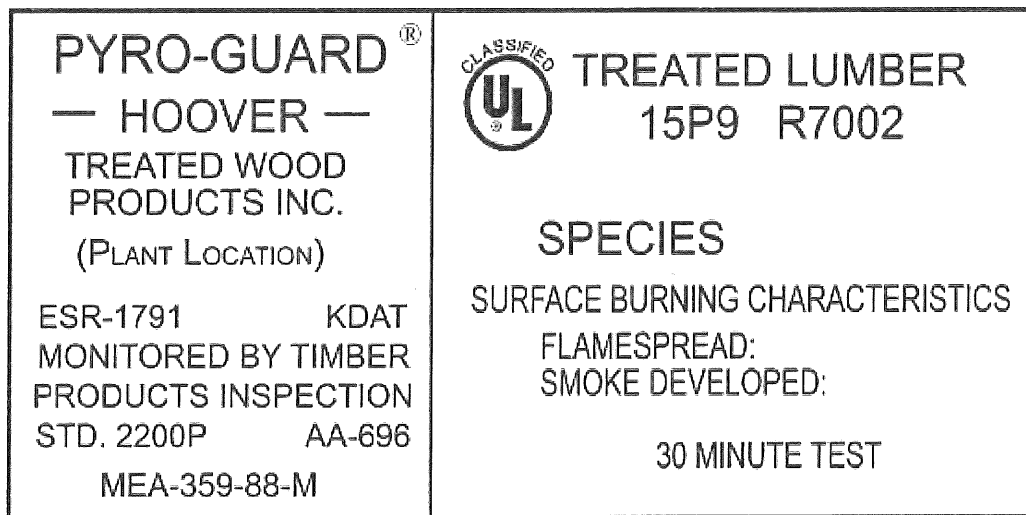
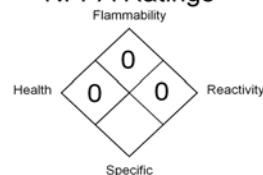


FIGURE 2—LUMBER STAMP



Material Safety Data Sheet

NFPA Ratings



PYRO-GUARD® Treated Wood

Section 1. Chemical Product and Company Identification

Product / Trade Name **PYRO-GUARD®** Treated Wood
 Synonyms Fire Retardant Treated Wood(FRTW), Interior FRTW
 Product Use Controls Flame Spread and Maintains Strength Under Fire Conditions Longer Than Untreated Wood
 MSDS Number HTWP-039 Revision 5/19/2009

Manufacturer Hoover Treated Wood Products, Inc.
 154 Wire Road NW
 Thomson, GA 30824
 (706) 595-5058 (Non-Emergency) <http://www.frtw.com>

Emergency Phone (M-F 8am-5:30pm eastern) (706) 595-7355

Section 2. Hazards Identification

HMIS

Health Hazard	0
Fire Hazard	0
Reactivity	0
Personal Protection	

Note: Personal protective equipment (PPE) is related to conditions of use. Determination of PPE is the responsibility of the employer. Refer to **Section 8 (Exposure Controls / Personal Protection)** of this MSDS for recommendations.

Emergency Overview

Product appearance and odor is no different than the wood before treatment. Wood species dictates appearance and odor. Generally a light to dark brown solid. Southern Pine is the predominant species used. Sapwood is yellowish white and heartwood, reddish brown. Wood dust consists of finely divided particles generated from sawing, sanding, routing, or chipping solid dimensional lumber or other wood products.

Acute or prolonged exposure to wood dust or chips from the product may cause mild irritation of the eyes, skin, gastrointestinal tract and respiratory tract. Product may form explosive dust/air mixtures if high concentration of product dust is suspended in air.

Potential Health Effects

Inhalation: Airborne treated or untreated wood dust may cause nose, throat or lung irritation. Various species of untreated wood dust can elicit allergic respiratory response in sensitized persons.

Eye Contact: Treated or untreated wood dust may cause mechanical irritation.

Skin Contact: Handling wood may result in skin exposure to splinters. Prolonged and/or repeated contact with treated or untreated wood dust or chips may result in mild irritation. Various species of untreated wood dust can elicit allergic type skin irritation in sensitized persons.

Ingestion: Not anticipated to occur.

Chronic Wood Dust (treated or untreated) Effects: Wood dust, depending on species, may cause dermatitis on prolonged, repetitive contact; may cause respiratory sensitization and/or irritation.

Potential Environmental Effects

No known significant environmental effects.

Section 3 Composition / Information On Ingredients

CAS #	Component	Approximate % By Weight ¹
Not Available	Wood / Wood Dust	> 88%
Proprietary	Boron Compounds	< 4%
Proprietary	Nitrogen Compounds	< 4%
Proprietary	Phosphorous Compounds	< 3%
Proprietary	Sodium Compounds	< 1%
1897-45-6	Tetrachloroisophthalonitrile	< 0.02 %

¹ The values presented will vary due to the variability of treatment and the natural variability of wood

Section 4. First Aid Measures

Inhalation: Remove from wood dust exposure. If breathing has stopped administer artificial respiration. Seek medical aid if symptoms persist.

Eye Contact: Gently flush any particles from the eyes with large amounts of water for at least 15 minutes. DO NOT RUB THE EYES. Seek medical aid if irritation persists.

Skin Contact: Rinse wood dust off with water. DO NOT RUB. Once the skin is free of the wood dust, wash thoroughly with soap and water. Wash contaminated clothing before reuse. Seek medical aid if severe irritation develops.

Ingestion: Rinse the victim's mouth out with water. Do not induce vomiting. If symptoms develop, call a physician or poison center at (800) 222-1222.

Section 5. Fire Fighting Measures

Flammable Properties

This product resist burning - Class A per ASTM E-84 (Flame Spread <25). Fire from a separate fuel source may be intense enough to cause thermal decomposition releasing toxic fumes and/or gasses. Wood dust is combustible, and may form explosive mixtures with air in the presence of an ignition source.

Extinguishing Media

Suitable Media: Water Fog, Foam, CO₂, or Dry Chemical - Use methods for the surrounding fire.

Protection of Firefighters

Specific Hazards: Wood dust may present a strong to severe explosion hazard if dust cloud contacts an ignition source. Use water to wet down wood dust to reduce likelihood of ignition or dispersion of dust into air. Remove burned or wet dust to open area after fire is extinguished. Combustion or thermal decomposition can yield dangerous fumes of phosphorous compounds, nitrogen compounds, boron compounds, sodium compounds, carbon dioxide, carbon monoxide, aliphatic aldehydes, organic acids, or polycyclic aromatic hydrocarbons.

Protective Equipment and Precautions: Wear complete fire service protective equipment (Full Bunker Gear), including full-face NIOSH and NFPA – approved self-contained breathing apparatus (SCBA). Avoid inhaling any combustion products.

Section 6. Accidental Release Measures

Personal Precautions: None necessary.

Environmental Precautions: None necessary.

Methods for Containment: Product is an article – none necessary.

Methods for Clean-up: None necessary.

Other Information: No additional information available.

Section 7. Handling and Storage

Handling

Do not generate airborne dust in the presence of an ignition source when sawing, cutting, sanding, grinding, routing or chipping wood. Wash hands after handling and before eating. Avoid contact of wood dust with skin and eyes. Avoid breathing wood dust. Avoid skin penetration by wood splinters. Launder clothing worn when generating wood dust before reuse. Do not eat, drink, or smoke when handling this product or in areas where dust of this product are present. Use appropriate personal protective equipment (PPE).

Storage

Protect from physical damage. Store **PYRO-GUARD®** treated lumber and plywood off the ground, in a dry place, protected from weather. Exposure to weather may impair product's performance. While at the job site, before installation, cover with plastic tarps, allowing for adequate air circulation. Keep away from open flame. Follow good hygienic and housekeeping practices. Clean-up areas where wood dust settles to avoid excessive accumulation of this combustible material. Minimize practices that generate airborne dust.

Section 8. Exposure Controls / Personal Protection

Exposure Guidelines

Name	CAS#	Agency	Exposure Limits	Comments
Wood Dust (softwood and hardwood)	None	OSHA	PEL-TWA 15 mg/m ³ (see footnote 1 below)	Total dust (PNOR)
		OSHA	PEL-TWA 5 mg/m ³ (see footnote 1 below)	Respirable dust fraction (PNOR)
		ACGIH	TLV-TWA 0.5 mg/m ³	Inhalable, Western red cedar
		ACGIH	TLV-TWA 1 mg/m ³	Inhalable, All other species
		Recommended ¹	PEL-TWA 5 mg/m ³	Softwood or hardwood total dust
		Recommended ¹	PEL-STEL 10 mg/m ³	Softwood or hardwood total dust
		Recommended ¹	PEL-TWA 2.5 mg/m ³	Western red cedar total dust

¹ In AFL-CIO v. OSHA 965 F. 2d 962 (11th Cir. 1992), the court overturned OSHA's 1989 Air Contaminants Rule, including the specific PELs for wood dust that OSHA had established at that time. The 1989 PELs were: TWA 5 mg/m³; STEL (15 MIN) - 10 mg/m³ (ALL SOFTWOODS AND HARDWOODS, EXCEPT WESTERN RED CEDAR); WESTERN RED CEDAR: TWA - 2.5 mg/m³.

Wood dust is now officially regulated as an organic dust under the Particulates Not Otherwise Regulated (PNOR) or Inert or Nuisance Dust categories at PELs noted under the Hazardous Ingredients section of this MSDS. However, A NUMBER OF STATES HAVE INCORPORATED PROVISIONS OF THE 1989 STANDARD IN THEIR STATE PLANS. ADDITIONALLY, OSHA HAS ANNOUNCED THAT IT MAY CITE COMPANIES UNDER THE OSH ACT GENERAL DUTY CLAUSE UNDER APPROPRIATE CIRCUMSTANCES FOR NON-COMPLIANCE WITH THE 1989 PELs.

Engineering Controls

Use ventilation as necessary to keep exposure to airborne contaminants below the exposure limits. Due to the explosive potential of wood dust when suspended in air, ventilation systems should be kept clean and precautions should be taken to prevent sparks or other ignition sources.

Personal Protective Equipment (PPE)

Eye / Face Protection: When sawing, cutting, sanding, grinding, routing or chipping wood wear safety glasses with side shields.

Skin Protection: When sawing, cutting, sanding, grinding, routing or chipping wood, wear clothing that covers the skin – long pants, long sleeve shirts, hat, gloves and shoes. When simply handling the product gloves should be worn to protect from splinters.

Respiratory Protection: When sawing, cutting, sanding, grinding, routing or chipping wood, actions that can generate wood dust, a dust mask should be worn.

General Hygiene Considerations: Wash thoroughly after handling and before eating, drinking, or smoking. Launder clothing worn when generating wood dust before reuse.

Section 9. Physical and Chemical Properties

Appearance: Product appearance and odor is no different than the wood before treatment. Wood species dictates appearance and odor. Generally a light to dark brown solid. Southern Pine is the predominant species used. Sapwood is yellowish white and heartwood, reddish brown. Wood dust consists of finely divided particles generated from sawing, sanding, routing, or chipping solid dimensional lumber or other wood products.

Odor: Wood Smell – Pine Pitch Mainly

Odor Threshold: Not Applicable

Physical State: Solid

pH: Not Applicable

Melting/Freezing: Not Applicable

Initial Boiling Point and Boiling Range: Not Applicable

Flash Point: Not Applicable

Evaporation Rate: Not Applicable

Upper/Lower Flammability or Explosive Limits: Sawing, sanding or machining wood products can produce wood dust as a by-product. Wood dust is a strong to severe explosion hazard if a dust cloud contacts an ignition source. 212 F (100 C) has been suggested as the upper temperature limit for continuous exposure for wood without risk of ignition (wood dust may require a still lower temperature). An airborne concentration of 40 grams of dust per cubic meter of air is often used as the lowest explosion limit (LEL) for wood dust.

Vapor Pressure: Not Applicable

Vapor Density: Not Applicable

Specific Gravity or Relative Density: 0.30 to 0.70 Depending On Wood Species (water=1)

Solubility: Insoluble

Partition Coefficient: Not Applicable

Auto-Ignition Temperature: 400° F – 500° F

Decomposition Temperature: > 300° F Char Starts

Section 10. Stability and Reactivity

Chemical Stability: Stable under normal conditions.

Conditions to Avoid: Open flame will cause product to char. Product may ignite at temperature in excess of 400° F. Avoid prolonged continuous temperature above 212° F.

Incompatible Materials: Strong Acids, Open Flame, and Strong Oxidizers

Hazardous Decomposition Products: Thermal decomposition products include carbon monoxide, carbon dioxide, aliphatic aldehydes, resin acids, phosphorous compounds, nitrogen compounds, boron compounds, sodium compounds and polycyclic aromatic hydrocarbons.

Possibility of Hazardous Reactions: None known.

Section 11. Toxicological Information

No specific toxicological data is available on the fire retardant wood itself. However, considerable information is available regarding the toxicity of its components and untreated wood. The presence of the fire retardant in the treated wood or wood dust is not expected to affect its inherent toxicity characteristics.

Carcinogenicity: **PYRO-GUARD®** Treated Wood and its components are not listed as carcinogens by ACGIH, NIOSH, or IARC. 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)).

Wood Dust:

Wood dust (softwood or hardwood): OSHA Hazard Rating = 3.3; moderately toxic with probable oral lethal dose to humans being 0.5-5 g/kg (about 1 pound for a 70 kg or 150 pound person). Source: *OSHA Regulated Hazardous Substances*, Government Institutes, Inc., February 1990.

Carcinogenicity Listing:

- NTP: Wood dust, *Known Human Carcinogen*
- IARC Monographs: Wood dust, Group 1
- OSHA Regulated: Not listed

NTP: According to its *Tenth Report on Carcinogens*, NTP states, "Wood dust is known to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in humans. An association between wood dust exposure and cancer of the nose has been observed in many case reports, cohort studies, and case-control studies that specifically addressed nasal cancer. Strong and consistent associations with cancer of the nasal cavities and paranasal sinuses were observed both in studies of people whose occupations are associated with wood dust exposure and in studies that directly estimated wood dust exposure."

IARC – Group I: Carcinogenic to humans; sufficient evidence of carcinogenicity. This classification is primarily based on studies showing an association between occupational exposure to wood dust and adenocarcinoma to the nasal cavities and paranasal sinuses. IARC did not find sufficient evidence of an association between occupational exposure to wood dust and cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum.

Section 12. Ecological Information

Nitrogen is a critical element for plant growth and a basic constituent of proteins. In excess, however, it can make soil conditions less favorable for plant growth, damage aquatic life, and impair human health.

Phosphorus is an essential nutrient for plants and animals; however, excessive accumulation of nutrients can represent too much of a good thing, especially in water bodies such as lakes, streams and estuaries. Loading of nutrients to surface waters causes changes in ecological function, and often has undesirable environmental and economic consequences.

Borates have an excellent reputation for safety. In trace amounts, they're essential micronutrients for plants and believed to be nutritionally important for people. In extreme doses, they can make you ill. As perspective, borates are about as acutely toxic as table salt. The United States Food and Nutrition Board (FNB) recently recognized the safety of boron by establishing a Tolerable Upper Intake Level (UL) for boron of 20 milligrams per day.

Eutrophication is the enrichment of freshwater and marine systems with nutrients, particularly nitrogen and phosphorus.

Environmental Toxicity: None known.

Environmental Fate: Wood is a naturally occurring product and decomposes into soil and soil enrichments. The nitrogen, phosphorus, and boron compounds are plant nutrients and are normal soil additives.

Section 13. Disposal Considerations

Recover or recycle if possible.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Dispose of as you would any other discarded wooden building component.

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Section 14. Transport Information

Not regulated as a hazardous material by the U.S. Department of Transportation.

Not listed as a hazardous material in Canadian Transportation of Dangerous Goods (TDG).

Section 15. Regulatory Information

US Federal Regulations

All components are on the U.S. EPA TSCA Inventory List or exempt.

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), or CERCLA (40 CFR 302.4). Tetrachloroisophthalonitrile is listed in SARA Section 313 (40 CFR 372.65)

FIFRA: No information is available.

CERCLA: Not Applicable

OSHA: Wood dust may be hazardous under the criteria of the federal OSHA Hazard Communication standard 29 CFR 1910.1200.

FDA: Not Applicable

State Right-To-Know

This product is not considered hazardous for SARA Title III sections 311/312.

Other state regulations may apply. Check individual state requirements.

Pennsylvania: Wood dust (certain hardwoods as beech and oak) softwood appears on Pennsylvania's *Appendix A – Hazardous Substance Lists*.

Canada

WHMIS Classification: Wood dust is not considered a controlled product.

DSL/NDSL: Not Applicable

Section 16. Other Information

Effective Date: 5/19/2009

Prepared By: Hoover Treated Wood Products, Inc.

User's Responsibility:

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Hoover Treated Wood Products, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will Hoover Treated Wood Products, Inc. be responsible for damages or any nature whatsoever resulting from the use of or reliance upon this information. The user has the responsibility to make sure that this sheet is the most up-to-date issue.

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Definition of Common Terms:

ACGIH	=	American Conference of Governmental Industrial Hygienists
C	=	Ceiling Limit
CAA	=	Clean Air Act
CAS#	=	Chemical Abstracts System Number
CERCLA	=	Comprehensive Environmental Response, Compensation and Liability Act
CFR	=	Code of Federal Regulations
CWA	=	Clean Water Act
DOT	=	U. S. Department of Transportation
DSL	=	Domestic Substance List (Canada)
EC50	=	Effective concentration that inhibits the endpoint to 50% of control population
EPA	=	U.S. Environmental Protection Agency
FIFRA	=	Federal Insecticide, Fungicide and Rodenticide Act
IARC	=	International Agency for Research on Cancer
IATA	=	International Air Transport Association
IBC	=	International Building Code
IDL	=	Ingredient Disclosure List (Canada)
IMDG	=	International Maritime Dangerous Goods
LC50	=	Concentration in air resulting in death to 50% of experimental animals
LCLo	=	Lowest concentration in air resulting in death
LD50	=	Administered dose resulting in death to 50% of experimental animals
LDLo	=	Lowest dose resulting in death
LEL	=	Lower Explosive Limit
LFL	=	Lower Flammable Limit
MSHA	=	Mining Safety and Health Administration
NAP	=	Not Applicable
NAV	=	Not Available
NFPA	=	National Fire Protection Association

NIOSH	=	National Institute for Occupational Safety and Health
NPRI	=	Canadian National Pollution Release Inventory
NTP	=	National Toxicology Program
OSHA	=	Occupational Safety and Health Administration
PEL	=	Permissible Exposure Limit
RCRA	=	Resource Conservation and Recovery Act
SARA	=	Superfund Authorization and Reauthorization Act
STEL	=	Short-Term Exposure Limit (15 minutes)
STP	=	Standard Temperature and Pressure
TCLo	=	Lowest concentration in air resulting in a toxic effect
TDG	=	Canadian Transportation of Dangerous Goods
TDL _o	=	Lowest dose resulting in a toxic effect
TLV	=	Threshold Limit Value
TSCA	=	Toxic Substance Control Act
TWA	=	Time-Weighted Average (8 hours)
UFL	=	Upper Flammable Limit
WHMIS	=	Workplace Hazardous Materials Information System (Canada)

Hazard Information Label Text:

**FIRE RETARDANT TREATED WOOD DUST
CAUTION!**

Sawing, sanding or machining wood products can produce wood dust that can cause a flammable or explosive hazard.

Wood dust may cause lung, upper respiratory tract, eye and skin irritation. Some wood species may cause dermatitis and/or respiratory allergic effects.

- Avoid dust contact with ignition sources.
- Sweep or vacuum dust for recovery or disposal.
- Avoid prolonged or repeated breathing of wood dust in the air.
- Avoid dust contact with eyes and skin.
- Refer to FIRE RETARDANT TREATED WOOD MSDS for additional information.

FIRST AID: In case of contact, flush eyes or skin with water. If irritation persists, call a physician.

CONTACT: For additional information, please contact the manufacturer.