MAYCO INDUSTRIES

# LEAD LINED PLYWOOD

Mayco Industries, Inc. lead lined plywood is furnished in ½", 5/8", ¾" and 1" Fire Resistant plywood with pure lead sheet meeting federal specification QQ-L-201 F and ASTM B 749-03 Standard Specification for Lead and Lead Alloy Sheet, Strip and Plate products – see NCRP Reports #33, #39, #45, and #147. The plywood meets Underwriters Laboratories, Inc. (UL) ASTM E 84 test and each piece bears the UL classified mark indicating the extended 30 minute test. Flame spread rate is 25 or less when tested in accordance with ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials". The lead extends over the width of the plywood and 2" strips are included to cover the vertical joints between each of the boards. Strips are required at the corners.

Lead lined plywood is furnished in 4' x 8' sheets or can be configured to specifications required. All penetrations into the lead lined area should be lined with lead of the same thickness as the lead used to prevent radiation leakage. Lead angles are available for installation upon request.

Lead thickness greater than 1/8" should be on lead-lined plywood.

RADIATION SHIELDING

# LEAD LINED DRYWALL INSTALLATION INFORMATION

MAYCO INDUSTRIES™

Lead-Laminated Gypsum Board: Single unpierced layer of sheet lead laminated to back of gypsum board.

Lead Lined Drywall (also referred to as Lead Lined Sheetrock or Lead Lined Gypsum) supplied with lead lining bonded to 1/2" or 5/8" drywall.

2" lead batten strips of the same lead thickness and height of lead lined drywall are required to provide the necessary 1" overlap with adjoining Lead Lined Drywall sheets.

5/16" diameter lead discs, same thickness as sheet lead, may be required at screw heads. Lead angle of same thickness lead may be used in place of discs.

3" minimum lead corner batten strips, same lead thickness and height of lead lined drywall, are required for inside and outside corners of wall intersections. This lead is bent on angle to create a 1-1/2" center on both sides of lead.

Screw Fasteners: Type S Bugle Head, length as required.

The Lead Lined Drywall should be fastened at a minimum of 8" on center at the edges of each sheet, and at minimum of 12" on center at the intermediate studs with normal drywall screws.

Comply with manufacturer's recommendations for wrapping electrical outlet boxes, view window frames, and other penetrations through lead barrier material with sheet lead to provide radiation protection to levels indicated or levels required to match adjacent wall protection.

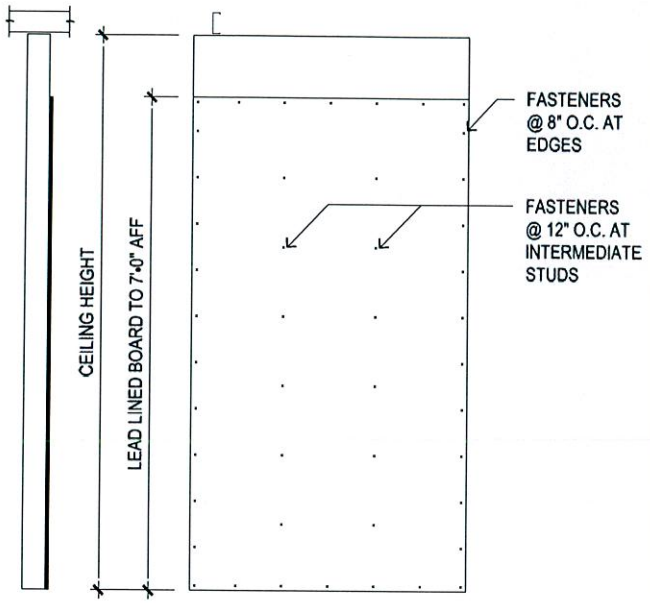
Wherever lead protection is penetrated, cut, or punctured, assure continuity of shielding by use of sheet lead (same thickness as sheet lead), lead plugs or other approved method.

Install sheet lead lining within steel door frames to provide radiation protection to levels indicated or levels required to match adjacent wall protection.

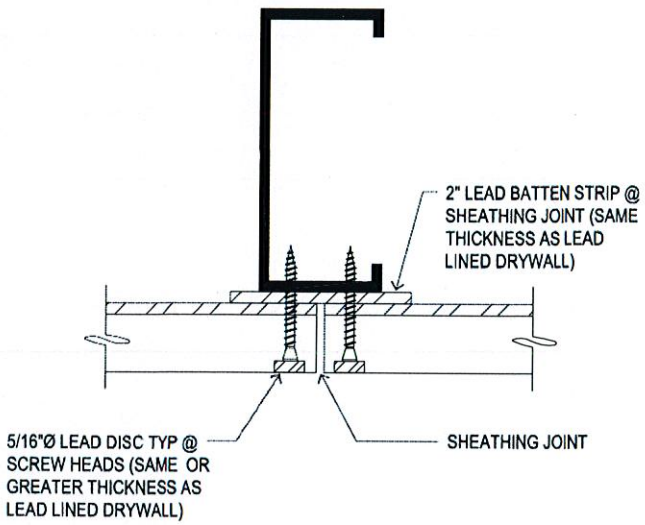
RADIATION SHIELDING

# LEAD LINED DRYWALL

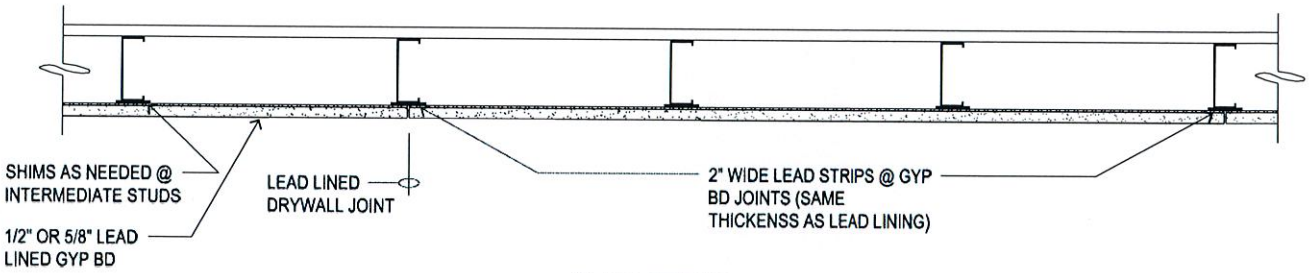
MAYCO INDUSTRIES™



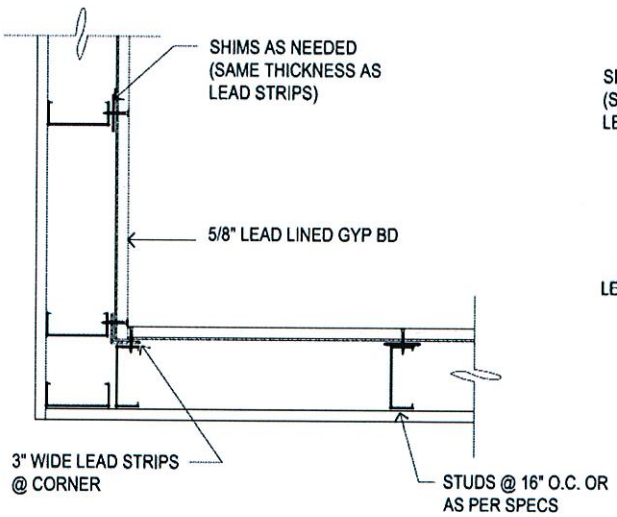

LEAD LINED GYPSUM BOARD
TO HEIGHT INDICATED



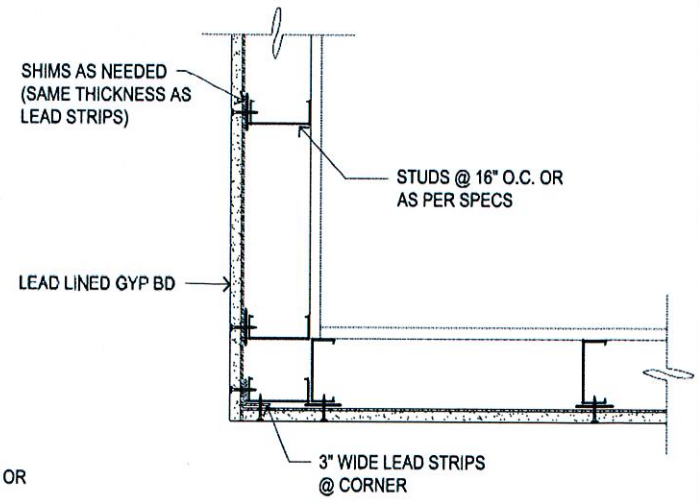

TYPICAL JOINT
DETAIL




WALL DETAIL




INSIDE CORNER STUDS

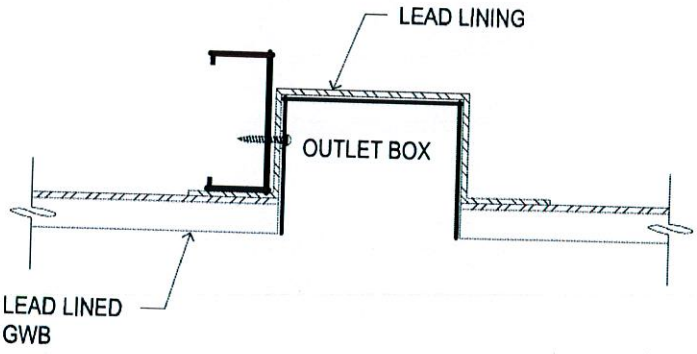



OUTSIDE CORNER STUDS

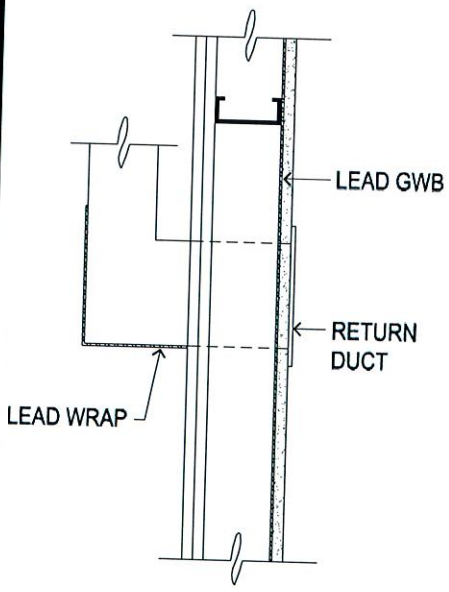
RADIATION SHIELDING

# DRYWALL CUT OUTS AND PENETRATIONS

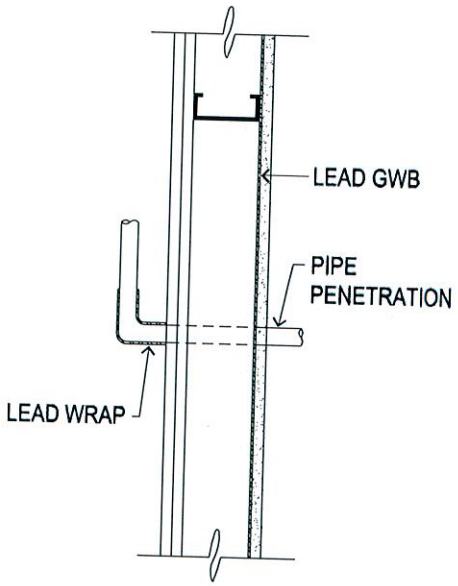
MAYCO INDUSTRIES™



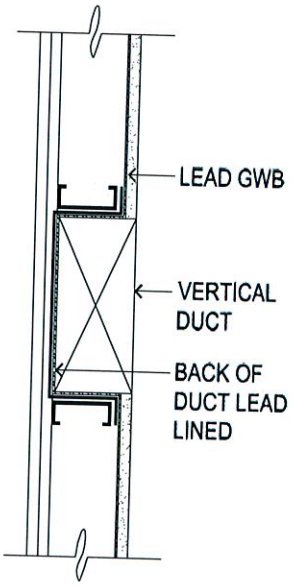

LEAD FOR OUTLET BOXES AND SWITCH BOXES




THRU DUCT WRAP




TYP PIPE WRAP




WALL DUCT

MAYCO INDUSTRIES

# US – OSHA SAFETY DATA SHEET

**Issue Date:** 29-May-2015 **Revision Date:**

## 1. IDENTIFICATION

**Product Name:** Lead Products

**Synonyms:** Sheet lead, Strip lead, Lead plate, Lead flashings, Plumbing lead, Lead ingot, Lead pigs, Lead pipe, Lead bends, Lead wire, Came lead, Lead extrusions, Lead bricks, Lead wool, Lead anodes, Bullet lead, Lead bullets, Lead billets, Lead castings, Machined lead, Ballast lead, Other miscellaneous lead products.

**Recommended Uses:** Roofing, non-potable plumbing, radiation shielding, ballast, nuclear shielding, etc.

**Uses Advised Against:** Jewelry, toys, potable plumbing

**Manufacturer:**

Mayco Manufacturing, LLC (d.b.a. Mayco Industries)
18 West Oxmoor Road
Birmingham, AL 35209
Ph: 205-942-4242

## 2. HAZARDS IDENTIFICATION

**Classification**

This product is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Carcinogenicity | Category 1B |
| Reproductive toxicity | Category 1A |
| Specific target organ toxicity (repeated exposure) | Category 1 |

**Label elements**

**Danger!**

**Hazard statements**

Lead - May cause cancer.
May damage fertility or the unborn child.
May cause harm to breast-fed children.
Cause damage to central nervous system, blood formation and kidneys and cardiovascular system through prolonged or repeated exposure.

Antimony – Dust or fume will be irritant.
Antimony causes nasal septal ulceration and stomach lining irritation.

**Appearance:** Gray with bluish or silvery cast depending on alloy
**Physical state:** Solid
**Odor:** Odorless

**Precautionary Statements – Prevention**
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements – Response**
IF exposed or concerned: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

**Precautionary Statements – Storage**
Store locked up

**Precautionary Statements – Disposal**
Dispose of contents/container to an approved waste disposal plant

**Other information**

- Very toxic to aquatic life with long lasting effects

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material | % by Wt. | CAS # | OSHA EXPOSURE LIMIT |
|---|---|---|---|
| Lead | 91 – 99.99 | 7439-92-1 | 0.05 mg/cubic meter |
| Antimony | 0.5 – 9.0 | 7440-36-0 | 0.50 mg/cubic meter |

## 4. FIRST AID MEASURES

**First aid measures**

**Eye Contact** In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists. Do not rub affected area.

**Skin Contact** Wash off immediately with soap and plenty of water. If skin irritation persists, call a Physician.

**Inhalation** Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical Attention immediately. If conscious, have victim clear nasal passages.

**Ingestion** Seek immediate medical attention. Rinse mouth. Drink plenty of water. Induce Vomiting, but only if victim is fully conscious.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** **Acute (short term) exposure:** Lead is a potent, systemic poison; taken in large enough Doses, lead can kill in a matter of days. Acute encephalopathy may arise which develops Quickly to seizures, coma and death from cardiorespiratory arrest.

**Chronic (long term) exposure:** Chronic overexposure to lead may result in severe damage To blood forming. Nervous, urinary and reproductive systems. Some common symptoms

Of chronic overexposure include loss of appetite, metallic taste in mouth, anxiety, Constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, Nervous irritability, muscle and joint pain, fine tremors, numbness, dizziness, Hyperactivity, colic.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

## 5. FIRE – FIGHTING MEASURES

**Suitable extinguishing media:** Dry chemical, foam or CO2

**Specific hazards arising from the chemical:** May give off toxic fumes in a fire, including lead fumes.

**Explosion data:**

**Sensitivity to Mechanical Impact:** None known.

**Sensitivity to Static Discharge:** None known.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Lead is not considered to be a fire hazard. Powder/dust is flammable when heated or exposed to flame.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| **Personal precautions** | Evaluate personnel to safe areas. Avoid contact with skin, eyes and inhalation of dusts. Use personal protection recommended in Section 8. |
| **For emergency responders** | Wear respiratory protection. Wear proper personal protective equipment (gloves and goggles). Wear appropriate outer garment to protect clothing. |

**Environmental precautions**

| | |
|---|---|
| **Environmental precautions** | Prevent entry into waterways, sewers, surface drainage systems and poorly ventilated areas. |

**Methods and material for containment and cleaning up**

| | |
|---|---|
| **Methods for containment** | Avoid creating dust. Safely stop source of spill. Restrict non-essential personnel from area. All personnel involved in spill cleanup should avoid skin and eye contact by wearing appropriate personal protection equipment. Do not breathe dust. |
| **Methods for cleaning up** | Avoid dust formation. Clean up dusts with high efficiency particulate air (HEPA) filtered vacuum equipment or by wet cleaning. |
| **Prevention of secondary hazards** | Clean contaminated objects and area thoroughly observing environmental regulations. |

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling** — Use personal protection recommended in Section 8. Avoid generation of dust. Be familiar with the requirements set forth in the OSHA Lead Standard, 29 CGR 1910.1025.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** — Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible materials** — Strong oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines**

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Lead<br>7439-92-1 | TWA: 0.15 mg/m$^3$Pb | TWA: 0.05 mg/m$^3$Pb | IDLH: 100mg/m$^3$Pb<br>TWA: 0.050 mg/m$^3$Pb |
| Antimony<br>7440-36-0 | TWA: 0.5 mg/m$^3$Sb | TWA: 0.5 mg/m$^3$Sb | IDLH: 0.50 mg/m$^3$Sb<br>TWA: 0.5 mg/m$^3$Sb |

**Appropriate engineering controls**

**Engineering Controls** — Use contained process enclosures, local exhaust ventilation or other engineering controls to maintain aerosols below the exposure limit. If user operations generate dust, fume or mist use ventilation to keep exposure to airborne contaminates below the exposure limit.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** — Use safety glasses with side shields or chemical goggles.

**Skin and body protection** — Protective clothing is required if exposure exceeds the PEL or TLV or where possibility of skin or eye irritation exists. Full body cotton or disposable coveralls and disposable gloves should be worn during use and handling. Clothing should be left at work site and be properly disposed of or laundered after use. The wash water should be disposed of in accordance with local, state and federal regulations. Personal clothing should be protected from contamination.

**Respiratory protection** — If engineering controls cannot maintain airborne concentrations below exposure limits, use appropriate, approved respiratory protection (a 42 CFR 84 class N, R, or P-100 particulate filter cartridge). When exposure levels are unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn. Utilization of respiratory equipment should be in accordance with 29 CFR 1910.1025 and 29 CFR 1910.134.

**General Hygiene Considerations** — Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear disposable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Solid |
| **Appearance** | Gray with bluish or silvery cast depending on alloy |
| **Color** | Odorless |

| Property | Values | Remarks *Method |
|---|---|---|
| **pH** | Not available | |
| **Melting point/freezing point** | >600°C | |
| **Boiling point/boiling range** | >600°C | |
| **Flash Point** | Not applicable (high-melting point solid) | |
| **Evaporation rate** | Not applicable (high-melting point solid) | |
| **Flammability (solid, gas)** | Not combustible | |
| **Flammability Limit in Air** | | |
| **Upper flammability limit:** | Not combustible | |
| **Lower flammability limit:** | Not combustible | |
| **Vapor pressure** | Negligible | |
| **Vapor density** | Not applicable (high-melting point solid) | |
| **Specific Gravity** | 9.96 | |
| **Water solubility** | 70.2 mg/L at 20°C | |
| **Solubility in other solvents** | Lead compounds, soluble in 0.07 M hydrochloric acid | |
| **Partition coefficient** | Not applicable (inorganic) | |
| **Auto ignition temperature** | Not combustible | |
| **Decomposition temperature** | >600°C | |
| **Kinematic viscosity** | Not applicable (solid) | |
| **Dynamic viscosity** | Not applicable (solid) | |
| **Explosive properties** | Not considered to be explosive | |
| **Oxidizing properties** | Not considered to be oxidizing | |

**Other information**

| | |
|---|---|
| **Softening point** | Not available |
| **Molecular weight** | Not available |
| **VOC Content (%)** | Not available |
| **Bulk density** | Not available |

## 10. STABILITY AND REACTIVITY

**Reactivity**

Stable under normal conditions.

**Chemical stability**

Stable under normal conditions.

**Possibility of Hazardous Reactions**

None under normal processing.
Hazardous polymerization does not occur.

**Conditions to avoid**

Avoid excessive exposure to heat.

**Incompatible materials**
Strong oxidizing agents.

**Hazardous Decomposition Products**
Lead oxide fumes.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Inhalation** Lead has generally been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation.

**Eye contact** No data available.

**Skin contact** No data available.

**Ingestion** No data available.

**Component information** Lead is slowly absorbed by ingestion and inhalation and poorly absorbed through the skin. If absorbed, lead will accumulate in the body with low rates of excretion, leading to long-term build up. Part of risk management is to take blood samples from workers for analysis to ensure that exposure levels are acceptable.

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Lead<br>7439-92-1 | 56 mg/m$^3$ Rat | Not available | 100 mg/m$^3$Rat |
| Antimony<br>7440-36-0 | 7500mg Sb/kg<br>Rat | Not available | 720 mg Cu/m$^3$<br>Rat |

**Information on toxicological effects**

**Symptoms** Not available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation.

**Serious eye damage/eye irritation** Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation.

**Inhalation** In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungs by mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually absorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust or inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, and irritability, reduces

memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, delirium, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count.

**Ingestion**

Lead metal granules or dust: The Symptoms of lead poisoning include abdominal pain or cramps (lead colic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

**Carcinogenic effects**

Epidemiology studies or workers exposed to inorganic lead compounds have found a limited association with stomach cancer. This has led to the classification by IARC that inorganic lead compounds are probably carcinogenic to humans.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|
| Lead<br>7439-92-1 | A3 | 2B | Reasonably Anticipated | Category 1B |
| Antimony<br>7440-36-0 | A2 | 2B | Not Listed | Category 2 |

**Reproductive toxicity**

Exposure to high levels of lead may cause adverse effects on male and female, including adverse effects on sperm quality. Prenatal exposure to lead and its compounds is also associated with adverse effects on fetal development.

**STOT – single exposure**

Lead has been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation, with no evidence of any local or systemic toxicity from such exposures.

**STOT – repeated exposure**

Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

**Chronic toxicity**

Lead is a cumulative poison. Increasing amounts of lead can build up in the body and may reach a point where symptoms and disabilities occur. Continuous exposure may result in decreased fertility. Lead is a teratogen. Overexposure of lead by either parent before pregnancy may increase the chances of miscarriage or birth defects. May cause cancer.

| | |
|---|---|
| | Contains a known or suspected reproductive toxin. May cause adverse kidney effects. |
| **Target Organ Effects** | Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children. |
| **Aspiration hazard** | Not available. |

**Numerical measures of toxicity – Product Information**

| | |
|---|---|
| **Unknown Acute Toxicity** | 0% of the mixture consists of ingredient(s) of unknown toxicity |

**The following values are calculated based on chapter 3.1 of the GHS document.**

| | |
|---|---|
| **Inhalation LC50** | 850 mg/m$^3$ Rat |

## 12. ECOLOGICAL INFORMATION

| | |
|---|---|
| **Environmental Fate** | Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead. |

**Environmental Toxicity**

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacean |
|---|---|---|---|---|
| Lead 7439-92-1 | 0.072-0.388: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH 5.5-6.5) 0.026-0.080: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH >6.5-7.5) 0.021-0.050: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH <7.5-8.5) | 0.298: 96h Pimephales promelas mg/L LC50 static 0.041-1.810: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH 5.5-6.5)0.052-3.60: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >6.5-7.5) 0.114-3.25: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >7.5-8.5) 56000: 96h Gambusia affinis mg/L LC50 static | | 0.074-0.656: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH 5.5-6.5) 0.029-1.18: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >6.5-7.5) 0.026-3.12: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >7.5-8.5) |
| Antimony 7440-36-0 | None listed | Cyprinodont variegates: LC50 = 6.2-8.3 mg/L/96h | None listed | None listed |

**Bioaccumulation**

While lead metal and its compounds are generally insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead in bioavailable forms. Lead compounds are not particularly mobile in the aquatic environments, but can be toxic for organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are factors which regulate the degree of toxicity. In soil, lead compounds are generally not very bioavailable.

**Mobility**

Lead and lead compounds will partially settle out due to their fairly low solubility and partially dissolve. In soil, lead and lead compounds are generally not very mobile or bioavailable, as they can be strongly absorbed on soil particles, increasingly over time. It also forms complexes with organic matter and clay minerals that limit its mobility. When released into the soil, this material is not expected to leach into groundwater.

| | |
|---|---|
| **Other adverse effects** | Not available. |

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

| | |
|---|---|
| **Disposal of wastes** | Disposal should be in accordance with applicable regional, national and local laws and regulations. |
| **Contaminated packaging** | Disposal should be in accordance with applicable regional, national and local laws and regulations. |

## 14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail.

- Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated.
- Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

**DOT**

| | |
|---|---|
| **Proper shipping name** | Not applicable |
| **Hazard Class** | Not applicable |
| **Packing Group** | Not applicable |
| **Reportable Quantity (RQ)** | Not applicable |
| **Marine pollutant** | This product contains a chemical which is listed as a marine pollutant according to DOT. Lead compounds. |
| **Emergency Response Guide** | NAERG-171 |

## 15. REGULATORY INFORMATION

**International Inventories**

| | |
|---|---|
| **TSCA** | Complies |
| **DSL/NDSL** | Complies |
| **EINECS/ELINCS** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL** | Complies |

| | |
|---|---|
| **PICCS** | Complies |
| **AICS** | Complies |

**Legend:**

**TSCA –** United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL –** Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS –** European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS –** Japan Existing and New Chemical Substances
**IECSC –** China Inventory of Existing Chemical Substances
**KECL –** Korean Existing and Evaluated Chemical Substances
**PICCS –** Philippines Inventory of Chemicals and Chemical Substances
**AICS –** Australian Inventory of Chemical Substances

## US Federal Regulations

### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical Name | CAS No. | Weight - % | SARA 313 – Threshold Values % |
|---|---|---|---|
| Lead | 7439-92-1 | 91-99.99 | 0.1 |
| Antimony | 7440-36-0 | 0.5 – 9.0 | 1.0 |

### SARA 311/312 Hazard Categories

| | |
|---|---|
| **Acute Health Hazard** | Yes |
| **Chronic Health Hazard** | Yes |
| **Fire Hazard** | No |
| **Sudden Release of Pressure Hazard** | No |
| **Reactive Hazard** | No |

### CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical Name | CWA – Reportable Quantities | CWA – Toxic Pollutants | CWA – Priority Pollutants | CWA – Hazardous Substances |
|---|---|---|---|---|
| Lead 7439-92-1 | 10 lb. | X | X | X |
| Antimony 7440-36-0 | 5000 lb. | X | X | X |

### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

## US State Regulations

### California Proposition 65

This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.

| Chemical Name | California Proposition 65 |
|---|---|
| Lead – 7439-92-1 | Cancer |
| Antimony – 7440-36-0 | Cancer |

**US State Right-to-Know Regulations**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Lead – 7439-92-1 | X | X | X |
| Antimony – 7440-36-0 | X | X | X |

**US EPA Label Information**

**EPA Pesticide Registration Number** Not available

## 16. OTHER INFORMATION

**Issue Date** 29-May-2015
**Revision Date**
**Revision Note** None

**Disclaimer**

**This information provided in this Safety Data Sheet is correct to the best of our knowledge, information and Belief at the date of its publication. The information given is designed only as guidance for safe handling, use, Processing, storage, transportation, disposal and release and is not to be considered a warranty or quality Specification. The information materials or in any process, unless specified in the text.**

# US – OSHA SAFETY DATA SHEET

**Issue Date:** 29 May 2015 **Revision Date:**

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Name:** Lead-Lined Plywood

**Synonyms:** Lead-Lined Plywood

**Recommended Use** Radiation Shielding

**Manufacturer:**
Mayco Industries
18 West Oxmoor Road
Birmingham, AL 35209
Ph: 205-942-4242

## 2. HAZARDS IDENTIFICATION

**Classification**

This product is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Carcinogenicity | Category 1B |
| Reproductive toxicity | Category 1A |
| Specific target organ toxicity (repeated exposure) | Category 1 |

**Label elements**

### Danger

**Hazard statements**

Lead - May cause cancer.
May damage fertility or the unborn child.
May cause harm to breast-fed children.
Cause damage to central nervous system, blood formation and kidneys and cardiovascular system through prolonged or repeated exposure.

Antimony – Dust or fume will be irritant.
Antimony causes nasal septal ulceration and stomach lining irritation.

Wood dust – Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause cancer.

**Appearance:** Gray with bluish lead sheet applied to paper face with gypsum core sheetrock
**Physical state:** Solid
**Odor:** Odorless

**Precautionary Statements – Prevention**
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements – Response**
IF exposed or concerned: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

**Precautionary Statements – Storage**
Store locked up

**Precautionary Statements – Disposal**
Dispose of contents/container to an approved waste disposal plant

**Other information**

- Very toxic to aquatic life with long lasting effects
- Very toxic to aquatic life

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material | % by Wt. | CAS # | OSHA EXPOSURE LIMIT |
|---|---|---|---|
| Lead | 53 - 60 | 7439-92-1 | 0.05 mg/cubic meter |
| Antimony | 0.5 – 1.0 | 7440-36-0 | 0.50 mg/cubic meter |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | 40 - 47 | None available | 15.0 mg/cubic meter |
| Formaldehyde | 0.002 – 0.026 (plywood) | 50-00-0 | 0.78 ppm TWA, 2ppm STEL |

**Notes:**

Concentrations ranges of ingredients are presented to WHMIS. The percentage of wood is approximately 96%. Other compounds present in plywood/LVL and related wood products is a West Fraser mixed glue product (3.5% by weight) which is used to bind layers or strips of wood together, a wax (approximately 0.2% by weight) and a negligible amount of ink – all ingredients from the mixed glue, was and ink are below reportable requirements and are not disclosed in detail.

A small insignificant amount of formaldehyde may evaporate over time from the product and be emitted as a gas from decomposition or degradation of the mixed glue product.

## 4. FIRST AID MEASURES

**First aid measures**

**Eye Contact** In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention

| | |
|---|---|
| | if irritation persists. Do not rub affected area. |
| **Skin Contact** | Wash off immediately with soap and plenty of water. If skin irritation persists, call a Physician. |
| **Inhalation** | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical Attention immediately. If conscious, have victim clear nasal passages. |
| **Ingestion** | Seek immediate medical attention. Rinse mouth. Drink plenty of water. Induce Vomiting, but only if victim is fully conscious. |

**Most important symptoms and effects, both acute and delayed**

| | |
|---|---|
| **Symptoms** | **Acute (short term) exposure:** Lead is a potent, systemic poison; taken in large enough doses, lead can kill in a matter of days. Acute encephalopathy may arise which develops quickly to seizures, coma and death from cardiorespiratory arrest.<br>**Chronic (long term) exposure:** Chronic overexposure to lead may result in severe damage<br><br>To blood forming. Nervous, urinary and reproductive systems. Some common symptoms Of chronic overexposure include loss of appetite, metallic taste in mouth, anxiety, Constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, Nervous irritability, muscle and joint pain, fine tremors, numbness, dizziness, Hyperactivity, colic. |

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

## 5. FIRE – FIGHTING MEASURES

**Suitable extinguishing media:** Dry chemical, foam or CO2

**Specific hazards arising from the chemical:** May give off toxic fumes in a fire, including lead fumes. Wood dust is a combustible dust. Hazardous and thermal combustion products include: carbon monoxide, carbon dioxide, soot, and toxic and irritating fumes and gases, such as hydrogen cyanide, aldehydes, organic acids and polynuclear aromatic compounds.

**Explosion data:**

**Sensitivity to Mechanical Impact:** None known.

**Sensitivity to Static Discharge:** None known.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Lead is not considered to be a fire hazard. Powder/dust is flammable when heated or exposed to flame.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| **Personal precautions** | Evaluate personnel to safe areas. Avoid contact with skin, eyes and inhalation of dusts. Use personal protection recommended in Section 8. |
| **For emergency responders** | Wear respiratory protection. Wear proper personal protective equipment (gloves and goggles). Wear appropriate outer garment to protect clothing. |
| **Environmental precautions** | Prevent entry into waterways, sewers, surface drainage systems and poorly |

ventilated areas.

**Methods and material for containment and cleaning up**

| | |
|---|---|
| **Methods for containment** | Avoid creating dust. Safely stop source of spill. Restrict non-essential personnel from area. All personnel involved in spill cleanup should avoid skin and eye contact by wearing appropriate personal protection equipment. Do not breathe dust. |
| **Methods for cleaning up** | Avoid dust formation. Clean up dusts with high efficiency particulate air (HEPA) filtered vacuum equipment or by wet cleaning. |
| **Prevention of secondary hazards** | Clean contaminated objects and area thoroughly observing environmental regulations. |

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

| | |
|---|---|
| **Advice on safe handling** | Use personal protection recommended in Section 8. Avoid generation of dust. Be familiar with the requirements set forth in the OSHA Lead Standard, 29 CGR 1910.1025. |

**Conditions for safe storage, including any incompatibilities**

| | |
|---|---|
| **Storage Conditions** | Keep containers tightly closed in a dry, cool and well-ventilated place. |
| **Incompatible materials** | Strong oxidizing agents. |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines**

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Lead<br>7439-92-1 | TWA: 0.15 mg/m$^3$Pb | TWA: 0.05 mg/m$^3$Pb | IDLH: 100mg/m$^3$Pb<br>TWA: 0.050 mg/m$^3$Pb |
| Antimony<br>7440-36-0 | TWA: 0.5 mg/m$^3$Sb | TWA: 0.5 mg/m$^3$Sb | IDLH: 0.50 mg/m$^3$Sb<br>TWA: 0.5 mg/m$^3$Sb |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | TWA: 0.5 mg/m$^3$ | TWA: 15 mg/m$^3$ | IDLH: None Listed<br>TWA: 1.0 mg/m$^3$ |
| Formaldehyde<br>50-00-0 | 0.3 ppm (0.37mg/m$^3$)<br>CEILING, A2 | TWA: 0.75ppm,<br>2ppm STEL | IDLH: 20 ppm<br>TWA: 0.1 ppm 15min ceiling |

**Appropriate engineering controls**

| | |
|---|---|
| **Engineering Controls** | Use contained process enclosures, local exhaust ventilation or other engineering controls to maintain aerosols below the exposure limit. If user operations generate dust, fume or mist use ventilation to keep exposure to airborne contaminates below the exposure limit. |

**Individual protection measures, such as personal protective equipment**

| | |
|---|---|
| **Eye/face protection** | Use safety glasses with side shields or chemical goggles. |
| **Skin and body protection** | Protective clothing is required if exposure exceeds the PEL or TLV or where possibility of skin or eye irritation exists. Full body cotton or |

| | |
|---|---|
| | disposable coveralls and disposable gloves should be worn during use and handling. Clothing should be left at work site and be properly disposed of or laundered after use. The wash water should be disposed of in accordance with local, state and federal regulations. Personal clothing should be protected from contamination. |
| **Respiratory protection** | If engineering controls cannot maintain airborne concentrations below exposure limits, use appropriate, approved respiratory protection (a 42 CFR 84 class N, R, or P-100 particulate filter cartridge). When exposure levels are unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn. Utilization of respiratory equipment should be in accordance with 29 CFR 1910.1025 and 29 CFR 1910.134. |
| **General Hygiene Considerations** | Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear disposable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Physical state** | Solid |
| **Appearance** | Brown lined with Gray, bluish or silvery cast depending on alloy |
| **Color** | Odorless |

| **Property** | **Values** | **Remarks *Method** |
|---|---|---|
| **pH** | Not available | |
| **Melting point/freezing point** | >600°C | |
| **Boiling point/boiling range** | >600°C | |
| **Flash Point** | Not applicable (high-melting point solid) | |
| **Evaporation rate** | Not applicable (high-melting point solid) | |
| **Flammability (solid, gas)** | Not combustible | |
| **Flammability Limit in Air** | | |
| **Upper flammability limit:** | Not combustible | |
| **Lower flammability limit:** | Not combustible | |
| **Vapor pressure** | Negligible | |
| **Vapor density** | Not applicable (high-melting point solid) | |
| **Specific Gravity** | 9.96 | |
| **Water solubility** | 70.2 mg/L at 20°C | |
| **Solubility in other solvents** | Lead compounds, soluble in 0.07 M hydrochloric acid | |
| **Partition coefficient** | Not applicable (inorganic) | |
| **Auto ignition temperature** | Not combustible | |
| **Decomposition temperature** | >600°C | |
| **Kinematic viscosity** | Not applicable (solid) | |
| **Dynamic viscosity** | Not applicable (solid) | |
| **Explosive properties** | Not considered to be explosive | |
| **Oxidizing properties** | Not considered to be oxidizing | |

**Other information**

| | |
|---|---|
| **Softening point** | Not available |
| **Molecular weight** | Not available |
| **VOC Content (%)** | Not available |
| **Bulk density** | Not available |

## 10. STABILITY AND REACTIVITY

**Reactivity**

Stable under normal conditions.

**Chemical stability**

Stable under normal conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

Hazardous polymerization does not occur.

**Conditions to avoid**

Avoid excessive exposure to heat. Generation of dust through cutting, sanding or disturbing the pure product. Open flames, sparks, static, static discharge, heat and other ignition sources. May form explosive dust-air mixtures. Temperatures above 204.0°C (399.2°F).

**Incompatible materials**

Strong oxidizing agents.

**Hazardous Decomposition Products**

Lead oxide fumes.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

Hazardous exposure to lead compounds can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume.

| | |
|---|---|
| **Inhalation** | Lead has generally been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation. |
| **Eye contact** | No data available. |
| **Skin contact** | No data available. |
| **Ingestion** | No data available. |
| **Component information** | Lead is slowly absorbed by ingestion and inhalation and poorly absorbed through the skin. If absorbed, lead will accumulate in the body with low rates of excretion, leading to long-term build up. Part of risk management is to take blood samples from workers for analysis to ensure that exposure levels are acceptable. |

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Lead<br>7439-92-1 | 56 mg/m$^3$ Rat | Not available | 100 mg/m$^3$Rat |

| | | | |
|---|---|---|---|
| Antimony<br>7440-36-0 | 7500mg Sb/kg<br>Rat | Not available | 720 mg Cu/$m^3$<br>Rat |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | Not available | Not available | Not available |
| Formaldehyde<br>50-00-0 | Not available | Not available | 815 ppm<br>Rat |

**Information on toxicological effects**

**Symptoms** Not available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation.

**Serious eye damage/eye irritation** Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation.

**Inhalation** In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungs by mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually absorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust or inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, and irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, delirium, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count.

**Ingestion** Lead metal granules or dust: The Symptoms of lead poisoning include abdominal pain or cramps (lead colic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

**Carcinogenic effects** Epidemiology studies or workers exposed to inorganic lead compounds have found a limited association with stomach cancer. This has led to the classification by IARC that inorganic lead compounds are probably carcinogenic to humans.
No evidence of carcinogenic potential exists for sheetrock

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|
| Lead<br>7439-92-1 | A3 | 2B | Reasonably Anticipated | Category 1B |
| Antimony<br>7440-36-0 | A2 | 2B | Not Listed | Category 2 |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | A1 | Group 1 | Not Listed | Not Listed |
| Formaldehyde<br>50-00-0 | A2 | 2A | R | Category 1B |

**Reproductive toxicity** Exposure to high levels of lead may cause adverse effects on male and female, including adverse effects on sperm quality. Prenatal exposure to lead and its compounds is also associated with adverse effects on fetal development.

**STOT – single exposure** Lead has been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation, with no evidence of any local or systemic toxicity from such exposures.

**STOT – repeated exposure** Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

**Chronic toxicity** Lead is a cumulative poison. Increasing amounts of lead can build up in the body and may reach a point where symptoms and disabilities occur. Continuous exposure may result in decreased fertility. Lead is a teratogen. Overexposure of lead by either parent before pregnancy may increase the chances of miscarriage or birth defects. May cause cancer. Contains a known or suspected reproductive toxin. May cause adverse kidney effects.

**Target Organ Effects** Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

**Aspiration hazard** Not available.

**Numerical measures of toxicity – Product Information**

**The following values are calculated based on chapter 3.1 of the GHS document.**

**Inhalation LC50** 850 mg/m$^3$ Rat

## 12. ECOLOGICAL INFORMATION

**Environmental Fate** Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

**Environmental Toxicity** Soluble lead compounds are listed as a marine pollution according to DOT.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacean |
|---|---|---|---|---|
| Lead 7439-92-1 | 0.072-0.388: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH 5.5-6.5) 0.026-0.080: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH >6.5-7.5) 0.021-0.050: 72h Pseudokirchneriella subcapitatia, Chlorella kessierii mg/L ErC50 (pH <7.5-8.5) | 0.298: 96h Pimephales promelas mg/L LC50 static 0.041-1.810: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH 5.5-6.5)0.052-3.60: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >6.5-7.5) 0.114-3.25: 96h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >7.5-8.5) 56000: 96h Gambusia affinis mg/L LC50 static | None listed | 0.074-0.656: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH 5.5-6.5) 0.029-1.18: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >6.5-7.5) 0.026-3.12: 48h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >7.5-8.5) |
| Antimony 7440-36-0 | None listed | Cyprinodont variegates: LC50 = 6.2-8.3 mg/L/96h | None listed | None listed |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | None listed | None listed | None listed | None listed |
| Formaldehyde 50-00-0 | None listed | Rainbow trout LC50: 134mg/L/96h | None listed | None listed |

**Bioaccumulation**

While lead metal and its compounds are generally insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead in bioavailable forms. Lead compounds are not particularly mobile in the aquatic environments, but can be toxic for organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are factors which regulate the degree of toxicity. In soil, lead compounds are generally not very bioavailable.

**Mobility**

Lead and lead compounds will partially settle out due to their fairly low solubility and partially dissolve. In soil, lead and lead compounds are generally not very mobile or bioavailable, as they can be strongly absorbed on soil particles, increasingly over time. It also forms complexes with organic matter and clay minerals that limit its mobility. When released into the soil, this material is not expected to leach into groundwater.

**Other adverse effects** Not available.

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal of wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations.

| | |
|---|---|
| **Contaminated packaging** | Disposal should be in accordance with applicable regional, national and local laws and regulations. |

## 14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail.

- Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated.
- Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

**DOT**

| | |
|---|---|
| **Proper shipping name** | Not applicable |
| **Hazard Class** | Not applicable |
| **Packing Group** | Not applicable |
| **Reportable Quantity (RQ)** | Not applicable |
| **Marine pollutant** | Soluble lead compounds are listed as a marine pollutant according to DOT. |

## 15. REGULATORY INFORMATION

**International Inventories**

| | |
|---|---|
| **TSCA** | Complies |
| **DSL/NDSL** | Complies |
| **EINECS/ELINCS** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL** | Complies |
| **PICCS** | Complies |
| **AICS** | Complies |

**Legend:**

**TSCA** – United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** – Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** – European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** – Japan Existing and New Chemical Substances
**IECSC** – China Inventory of Existing Chemical Substances
**KECL** – Korean Existing and Evaluated Chemical Substances
**PICCS** – Philippines Inventory of Chemicals and Chemical Substances
**AICS** – Australian Inventory of Chemical Substances

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical Name | CAS No. | Weight - % | SARA 313 – Threshold Values % |
|---|---|---|---|
| Lead | 7439-92-1 | 53.0 – 60.0 | 0.1 |
| Antimony | 7440-36-0 | 0.5 – 1.0 | 1.0 |
| Hardwood, | | 40.0 – 47.0 | Not listed |

| | | | |
|---|---|---|---|
| softwood, allergenic and non-allergenic species (wood dust) | | | |
| Formaldehyde | 50-00-0 | 0.002 – 0.026 | 0.1 |

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **Acute Health Hazard** | Yes |
| **Chronic Health Hazard** | Yes |
| **Fire Hazard** | No |
| **Sudden Release of Pressure Hazard** | No |
| **Reactive Hazard** | No |

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical Name | CWA – Reportable Quantities | CWA – Toxic Pollutants | CWA – Priority Pollutants | CWA – Hazardous Substances |
|---|---|---|---|---|
| Lead 7439-92-1 | 10 lb. | X | X | X |
| Antimony 7440-36-0 | 5000 lb. | X | X | X |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | None listed | - | - | - |
| Formaldehyde 50-00-0 | 100 lb. | - | - | X |

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

**California Proposition 65**

This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.

| Chemical Name | California Proposition 65 |
|---|---|
| Lead – 7439-92-1 | Cancer |
| Antimony – 7440-36-0 | Cancer |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | Cancer |
| Formaldehyde - 50-00-0 | Cancer |

**US State Right-to-Know Regulations**

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Lead – 7439-92-1 | X | X | X |
| Antimony – 7440-36-0 | X | X | X |
| Hardwood, softwood, allergenic and non-allergenic species (wood dust) | X | - | X |
| Formaldehyde - 50-00-0 | X | X | - |

**US EPA Label Information**

**EPA Pesticide Registration Number** Not available.

## 16. OTHER INFORMATION

| | |
|---|---|
| **Issue Date** | 29-May-2015 |
| **Revision Date** | |
| **Revision Note** | Not available. |

**Disclaimer**

**This information provided in this Safety Data Sheet is correct to the best of our knowledge, information and Belief at the date of its publication. The information given is designed only as guidance for safe handling, use, Processing, storage, transportation, disposal and release and is not to be considered a warranty or quality Specification. The information materials or in any process, unless specified in the text.**

# HOOVER TREATED WOOD PRODUCTS, INC.

# *TECHNICAL NOTE*

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

# SPECIFICATION for *PYRO-GUARD®* Interior Fire Retardant Treated Wood

**PART 1 – GENERAL**

1.01 PRODUCT INDENTIFICATION

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. ***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 1or 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 EVALUATION SERVICE

Most Widely Accepted and Trusted

# 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** he 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) | Climate Zone[6,7] | | | Span (Inches) |
| | | | 1A | 1B | 2 | |
| $^{15}/_{32}$, $^{1}/_{2}$ | 32/16 | 24 | 19 | 30 | 43 | 16 |
| $^{19}/_{32}$, $^{5}/_{8}$ | 40/20 | 24<br>32 | 42<br>20 | 64<br>32 | 87<br>45 | 20<br>20 |
| $^{23}/_{32}$, $^{3}/_{4}$ | 48/24 | 32<br>48 | 34<br>10 | 51<br>18 | 71<br>27 | 24<br>24 |
| $^{7}/_{8}$ | — | 48 | 12 | 20 | 30 | — |
| $1^{1}/_{8}$ | — | 48 | 21 | 33 | 47 | 48 |

For SI: 1 inch = 25.4 mm, 1 psf = 48 N/m$^2$.

1. All loads are based on two-span condition with panels 24 inches wide or wider, strength axis perpendicular to supports.
2. 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 $1^{1}/_{8}$-inch roof sheathing panels, minimum 10d common or deformed shank nails must be used.
3. 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.
4. 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.
5. 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.
6. 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.
7. Climate Zone definition:
   1 - Minimum design roof live load or maximum ground snow load up to 20 psf:
   A - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
   B - All other qualifying areas of the continental United States
   2 - Minimum ground snow load over 20 psf
8. PYRO-GUARD® treated plywood must not be used as roof sheathing if a radiant shield is used beneath the roof sheathing.
9. 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.
10. Subfloor applications are limited to 100 psf maximum live load, except $1^{1}/_{8}$-inch thickness on 48-inch span limited to 65 psf total load.
11. 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.
12. 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.

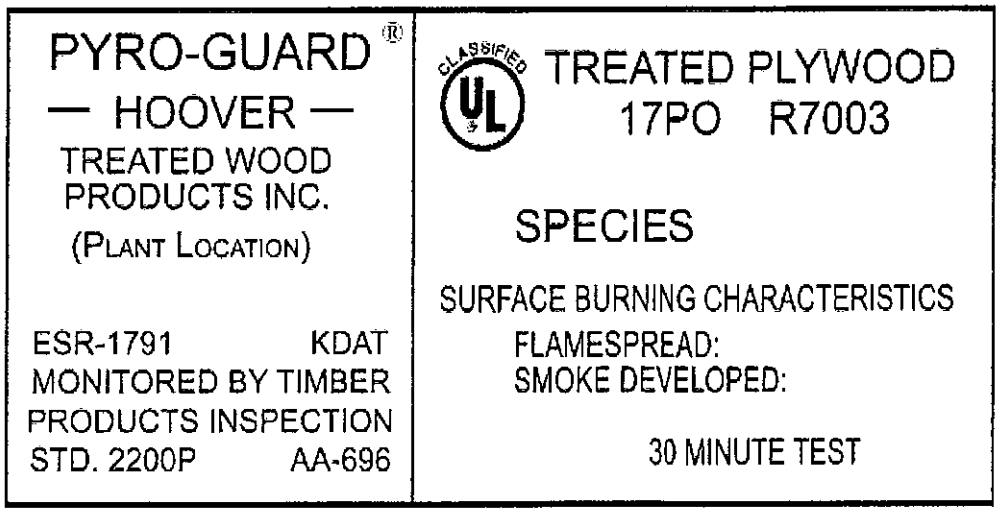



FIGURE 1—PLYWOOD STAMP

**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 |

1. Climate Zone definition:
   1 - Minimum design roof live load or maximum ground snow load up to 20 psf:
   A - Southwest Arizona, Southeast Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson)
   B - All other qualifying areas of the Continental United States
   2 - Minimum ground snow load over 20 psf
2. Duration of load adjustments for snow loads, 7-day (construction) loads, and wind loads given in the National Design Specifications for Wood Construction apply.
3. 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.
4. Modulus of elasticity values apply to all treated lumber decking.
5. 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.
6. Species: SP - southern pine; DF - Douglas fir; Other softwoods - limited to those species listed in Section 3.1 of this report.

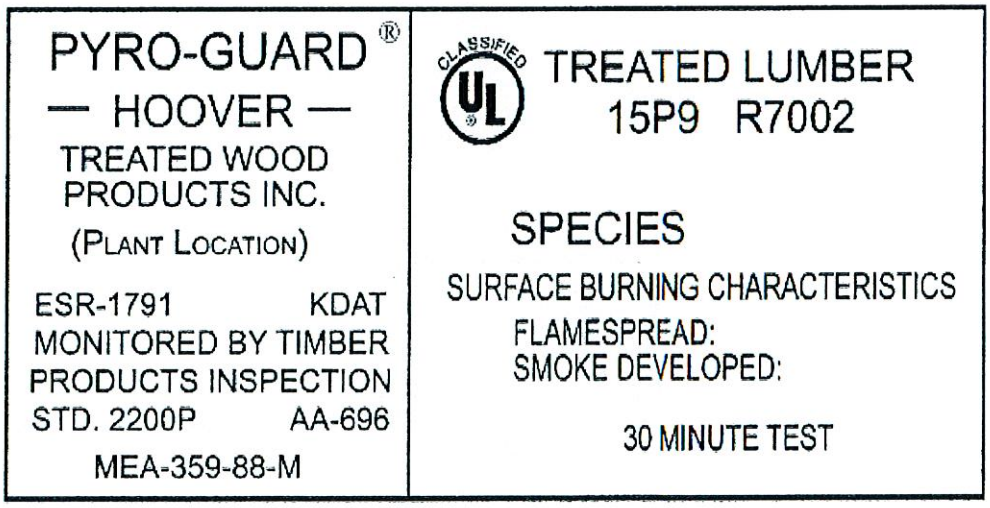



**FIGURE 2—LUMBER STAMP**

HOOVER
TREATED WOOD PRODUCTS, INC.

# Material Safety Data Sheet

NFPA Ratings
Flammability: 0
Health: 0
Reactivity: 0
Specific

## *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.

Continued On Next Page

**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, $CO_2$, or Dry Chemical - Use methods for the surrounding fire.

Continued On Next Page

**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.

Continued On Next Page

## *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 $mg/m^3$; STEL (15 MIN) - 10 $mg/m^3$ (ALL SOFTWOODS AND HARDWOODS, EXCEPT WESTERN RED CEDAR); WESTERN RED CEDAR: TWA - 2.5 $mg/m^3$.

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.

Continued On Next Page

## *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.

Continued On Next Page

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, of 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.

Continued On Next Page

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.*

Continued On Next Page

## 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.
NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

**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 |

Continued On Next Page

| | | |
|---|---|---|
| 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 |
| TDLo | = | 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.**