

MATERIAL SAFETY DATA SHEET

James Hardie Building Products
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Section 1. Chemical Products and Company Identification

Product Name/Trade Names: Cemplank® lap siding, Cempanel® vertical siding, Cemtrim® boards, Cemsoffit® panel.

Other Names: Exterior Fiber-Cement, Fiber-cement, Fiber-reinforced cement

Use: The above products are used as external wall cladding.

Manufacturer: James Hardie Building Products, 26300 La Alameda, Suite 400, Mission Viejo, CA 92691

Effective date: January 1, 2013. Check to verify the latest version or translation availability.

NOTE: As of the date of the preparation of this document, the information contained herein is believed to be accurate.

Section 2. Hazardous Ingredients/Identity Information

Substance Name	CAS #	UN #	EINECS #	% (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	30-45%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous material for shipping purposes	266-043-4	35-65%
Calcium Carbonate	471-34-1	Not a hazardous material for shipping purposes	207-439-9	<30%
Calcium Aluminum Silicate (Hydrate)	N/A	Not a hazardous material for shipping purpose	N/A	<20%
Cellulose	9004-34-6	Not a hazardous material for shipping purposes	232-674-9	<15%
Carbon Black	1333-86-4	Not a hazardous material for shipping purposes	215-609-9	<1%

Coated products are coated with water-based acrylic paint or acrylic sealer.

Section 3. Hazards Identification

Emergency Overview: Not explosive, not a fire hazard

Primary Routes of Entry and Potential Health Effects:

Inhalation:

Acute effects - Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust during sanding or sawing operations.

Chronic Effects - Repeated and prolonged overexposures to crystalline silica can cause silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Some studies suggest that cigarette smoking increases the risk of silicosis, bronchitis and lung cancer in persons also exposed to crystalline silica.

Acute silicosis - a sub-chronic disease associated with acute, massive silica exposure, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

Ingestion:

Unlikely under normal conditions of use, but swallowing the dust from this product may result in irritation or damage to the mouth and gastrointestinal tract due to alkalinity of dust.

Eye:

Dust may irritate the eyes from mechanical abrasion causing watering and redness.

Skin:

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

Medical conditions generally aggravated by exposure: Pulmonary function may be reduced by inhalation of respirable crystalline silica and/or cellulose. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia or restrictive lung diseases. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

Smoking:

Some studies suggest that cigarette smoking increases the risk of occupational respiratory diseases, including silica-related respiratory diseases.

Carcinogenicity:

California Proposition 65 Warning:

This product contains chemicals known to the State of California to cause cancer.

International Agency for Research on Cancer (IARC):

Crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources is carcinogenic to humans.

Carbon black is possibly carcinogenic to humans.

The National Toxicology Program (NTP):

NTP has concluded that respirable crystalline silica is a known human carcinogen.

LD50:

Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

NFPA Ratings (Scale 0-4): health = 2, flammability = 0, reactivity = 0, personal protection = E

Section 4. First Aid Measures

Signs and symptoms of over exposure: Breathlessness, wheezing, cough, sputum production

First Aid:

Swallowed:

If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.

Eye Contact:

Remove contact lens. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.

Skin Contact:

Wash with mild soap and water. Contact physician if irritation persists or later develops.

Inhaled:

Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

ADVICE TO DOCTOR: Treat symptomatically

Section 5. Fire Fighting Measures

James Hardie® fiber-cement products are neither flammable nor explosive.

Fire and Explosion Hazard:

1. Flash Point: Not applicable
2. Auto-ignition: Not applicable
3. Non-flammable and non-explosive

Extinguishing Media: This material is not combustible. Appropriate extinguishing media (carbon dioxide, foam, water, or dry chemical) for surrounding fire should be used.

Fire Fighting: Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

Section 6. Accidental Release Measures

No special precautions are necessary to pick up product that has been dropped. The following applies to spills or releases of dust generated during cutting or sanding of the material.

Precautions: Good housekeeping practices are necessary for cleaning up areas where spills or leaks have occurred. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Wherever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression through containment (for example, wetting loose dust), enclosure, or covers.

Use respiratory protection as described in Section 8.

Cleanup Methods: A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming with an industrial vacuum cleaner outfitted with a high-efficiency particulate (HEPA) filter is preferred to sweeping. Waste may be disposed of by landfill in compliance with federal, state and local requirements.

In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product. (refer to Section 10)

Section 7. Handling and Storage

Note: The fiber cement boards in their intact state do not present a health hazard. The controls below apply to dust generated from the boards by cutting, drilling, routing, sawing, crushing, or otherwise abrading, and cleaning or moving this dust.

James Hardie's recommendation: Keep exposure to dust as low as reasonably possible. Respirable crystalline silica limits are specified by OSHA and MSHA and identified in Section 8 of this MSDS. Exposure to respirable (fine) silica dust depends on a variety of factors, including activity rate (e.g. cutting rate), method of handling (e.g. electric shears), environmental conditions (e.g. weather conditions, workstation orientation) and control measures used.

Wherever possible, practices likely to generate dust should be carried out in well ventilated areas (e.g. outside). The work practices and engineering controls set out in Section 8 should be followed to reduce silica exposures.

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.

Section 8. Exposure Controls and Personal Protection

OSHA Permissible Exposure Standards (PEL): Exposures shall not exceed an 8-hour time weighted average (TWA) limit as stated in 29 CFR 1910.1000 Table Z-3 for mineral dusts, expressed in million particles per cubic feet (Mppcf) and/or milligrams per cubic meter (mg/m³). The American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) are that organization's recommended exposure limits based on an 8-hour TWA.

	<u>TLV mg/m³</u>	<u>PEL Mppcf</u>	<u>PEL mg/m³</u>
Crystalline Silica (Quartz) (Respirable)	0.025 mg/m ³ ---	<u>250</u> %SiO ₂ +5	<u>10mg/m³</u> %SiO ₂ +2
Quartz (Total Dust)	---	---	<u>30mg/m³</u> %SiO ₂ +2
Calcium Carbonate (Total Dust) (Respirable)	10 mg/m ³ ---	---	15 mg/m ³ 5 mg/m ³
Calcium Silicate (Total Dust) (Respirable)	---	---	15 mg/m ³ 5 mg/m ³
Nuisance Dust (Not Otherwise Specified) (Total Dust)	10 mg/m ³ (inhalable)	50	15 mg/m ³
(Respirable)	3 mg/m ³	15	5 mg/m ³
Cellulose (Total) (Respirable)	---	---	15 mg m ³ 5 mg/m ³
Carbon Black	3.5 mg/m ³	---	3.5 mg/m ³

Other Limits Recommended: The National Institute of Occupational Safety and Health also has a Recommended Exposure Limit (REL) of 0.05 mg/m³ for respirable crystalline silica, based on a 10-hour time-weighted average.

Products may be coated. If coated, the coating will be water based acrylic paint or acrylic sealer.

Personal Protection: When handling products that may generate silica dust: (1) follow our best practices to limit the release of dust; (2) work outdoors whenever possible, (3) wear a NIOSH-approved dust mask or respirator (e.g., the N 95 dust mask) to further limit exposure to respirable silica dust; and (4) warn others in the area.

Respiratory: If respirators are selected, use and maintain in accordance with ANSI Standard (Z88.2) for particulate respirators. Select respirators based on the level of exposure to crystalline silica as measured by dust sampling. Use respirators that offer protection to the highest concentrations of crystalline silica if the actual concentrations are unknown. Put in place a respiratory protection and monitoring program that complies with MSHA or OSHA (e.g. 29 CFR 1910.134) standards, which include provisions for a user training program, respirator repair

and cleaning, respirator fit testing and other requirements. Comply with all other applicable federal and state laws.

Eye: When cutting material, dust resistant safety goggles/glasses should be worn and used in compliance with ANSI Standard Z87.1-1-1989 and applicable OSHA (e.g. 29 CFR 1910.133) standards.

Skin: Loose comfortable clothing should be worn. Direct skin contact with dust and debris should be avoided by wearing long sleeved shirts and long trousers, a cap or hat, and gloves. Work clothes should be washed regularly.

Engineering Controls

Cutting Outdoors

1. Position cutting station so that wind will blow dust away from user or others in working area and allow for ample dust dissipation.
2. Use one of the following methods based on the required cutting rate and jobsite conditions:

Best

- Score and snap using carbide-tipped scoring knife or utility knife
- Fiber Cement Shears (electric or pneumatic)

Better

- Dust reducing circular saw equipped with Hardieblade™ saw blade and HEPA vacuum extraction

Good (for low to moderate cutting only)

- Dust reducing circular saw with Hardieblade™ saw blade

Cutting Indoors

- Cut only using score and snap method or with Fiber Cement Shears (manual, electric or pneumatic).
- Position cutting station in well-ventilated area to allow for dust dissipation

Sanding/Rebating/Drilling/Other Machining

If sanding, rebating, drilling, or other machining is necessary, you should always wear a NIOSH-approved dust mask or respirator (e.g. N-95) and warn others in the immediate area.

Clean-Up

During clean-up of dust and debris, NEVER dry sweep as it may excite silica dust particles into the user's breathing area. Instead, wet debris down with a fine mist to suppress dust during sweeping, or use a HEPA vacuum to collect particles.

- Important Notes:**
1. For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best"- level cutting methods where feasible
 2. NEVER use a power saw indoors
 3. NEVER use a circular saw blade that does not carry the Hardieblade™ saw blade trademark
 4. NEVER dry sweep – use wet suppression methods or HEPA vacuum
 5. NEVER use a grinder or continuous rim diamond blade for cutting
 6. ALWAYS follow tool manufacturer's safety recommendations

Section 9. Physical and Chemical Properties

Appearance and Odor: Solid gray boards with varying dimensions according to product

Vapor Pressure: Not Relevant

Specific Gravity: Not Relevant

Flammability Limits: Not Relevant

Boiling Point: Not Relevant

Melting Points: Not Relevant

NFPA Ratings (SCALE 0-4): health = 2, flammability = 0, reactivity = 0, personal protection = E

Flash Point: Not Relevant

Autoignition Temp: Not Relevant

Volatility: Not Relevant

Solubility in Water: Not Relevant

Evaporation Rate: Not applicable

Section 10. Stability and Reactivity

Stability: Crystalline silica and limestone are stable under ordinary conditions.

Conditions to Avoid: Excessive dust generation during storage and handling.

Materials to Avoid:

Incompatibility: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride or oxygen difluoride may cause fires and/or explosions. Furthermore, limestone is incompatible with acids and ammonium salts.

Section 11. Toxicological Information

The product is not toxic in its intact form. The following applies to dust that may be generated during cutting and sanding:

Chronic Effects:

Inhaled:

Repeated and prolonged overexposures to dust containing crystalline silica can cause silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Some studies suggest that cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

The following relates to health effects of cellulose: Based on limited animal research, it is possible that repeated chronic inhalation exposure to cellulose fiber dust over time may lead to inflammation and scarring of the lung in humans. Precautions taken for crystalline silica dust will protect against cellulose.

Section 12. Ecological Information

There is a very limited amount of ecological data available on the effects of releases that may occur from this product being released into the environment. Clean up of the spilled product would not be expected to leave any hazardous material that could cause a significant adverse impact. There is a limited amount of ecological data available on crystalline silica, primarily because it is a naturally occurring mineral. An adequate representation of these data is beyond the scope of this document.

Section 13. Disposal Consideration

Dispose of material as inert, non-metallic mineral in conformance with local, state and federal regulations. Crystalline silica and limestone is not a RCRA hazardous waste.

Section 14. Transport Information

There are no special requirements for storage and transport.

UN No:	None Allocated
Dangerous Goods Class:	None Allocated
Hazchem Code:	None Allocated
Poisons Schedule:	None Allocated
Packing Group:	Not Applicable
Label:	Not a DOT hazardous material. Local regulations may apply

Section 15. Regulatory Information

DOT Hazard Classification: None

Placard requirement: Not a DOT hazardous material. Local placarding regulations may apply.

California Proposition 65: Warning: Airborne particles of respirable size of crystalline silica are known to the State of California to cause cancer.

CERCLA Hazardous Substance (40 CFR Part 302):

Listed Substance: No.
Unlisted Substance: No.
Reportable Quantity (RQ): None.
Characteristic(s): Not applicable.
RCRA Waste Number: Not applicable.

SARA, Title III, Sections 302/303 (40 CFR part 355 – Emergency Planning and Notification):

Extremely Hazardous Substance: No.

SARA, Title III, Section 311/312 (40 CFR Part 370 – Hazardous Chemical Reporting: Community Right-To-Know):

Acute: Yes. Chronic: Yes. Fire: No. Pressure: No. Reactivity: No.

**SARA, Title III, Section 313
(40 CFR Part 372 – Toxic chemical Release Reporting: Community Right-To-Know):**

Not a RCRA Hazardous Waste.

TSCA Inventory List: Yes

TSCA 8(d): No

WARNING

WARNING: AVOID BREATHING SILICA DUST

James Hardie® products contain chemicals, known to the State of California to cause cancer. Respirable crystalline silica is considered by IARC and NIOSH to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) use fiber cement shears for cutting or, where not feasible, use a Hardieblade™ saw blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area; (4) wear a properly-fitted, NIOSH-approved dust mask or respirator (e.g. N-95) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - *never* dry sweep. For further information, refer to our installation instructions and Material Safety Data Sheet available at www.jameshardie.com or by calling 1-800-9HARDIE (1-800-942-7343). **FAILURE TO ADHERE TO OUR WARNINGS, MSDS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

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