

MATERIAL SAFETY DATA SHEET

James Hardie Europe B.V
Strawinskylaan 3007
Amsterdam, The Netherlands
Telephone (General Information):

0800 068 3103 (Free call UK)
0800 90 30 69 (Free call France)
0800 0224725 (Free call NL)
+31 (0) 20 301 6750 for all other countries

Section 1. Chemical Products and Company Identification

Product Name/Trade Names:

Hardieplank™ siding
Hardietrim™ siding
Hardiebacker™ backerboard
Hardieflex™ siding
Hardiepanel™ siding

Windshield™ siding
Villaboard™ siding

Other Names: Fibre-cement, Fibre-reinforced cement

Use: The above products are used as internal/external wall cladding and tile underlayment.

Manufacturer: James Hardie Building Products Ltd. 26300 La Alameda, Suite 250
Mission Viejo, California 92691, United States of America

Effective date: 1st August 2007. Please 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.

Substance Name	CAS Number	UN Number	EINECS Number	
(by weight)				
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	35-45%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous Material for shipping purposes	266-043-4	50-60%
Cellulose	9004-34-6	Not a hazardous Material for shipping purposes	232-674-9	<10%
Other non hazardous ingredients (fillers)				<10%

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



Section 2. Hazardous Ingredients/Identity Information

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-878-4	35-45%
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Section 3. Hazards Identification

This product is not currently classified as dangerous under Directives 1999/45/EC and 67/548/EEC. However, the following Risk and Safety Phrases may be applied to this product.

Risk Phrases	R37	Irritating to respiratory system
	R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
Safety Phrase	R49	Can cause cancer by inhalation
	S22	Do not breathe dust
	S24/25/36/37/39	Avoid contact with Skin and Eyes Wear suitable Eye/Face/Hand protection

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 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 - 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:

International Agency for the Research on Cancer (IARC):

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

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® Fibre-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 releases of dust generated during cutting or sanding of the material.

Precautions: 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 with water and containment, 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 (never dry sweep). Vacuuming with an industrial vacuum cleaner fitted 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 safety data sheet. Avoid using materials and products that are incompatible with the product. (refer to Section 10)

Section 7. Handling and Storage

Note: The fibre 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 sawdust.

James Hardie recommendation: Keep exposure to dust as low as reasonably possible. Respirable crystalline silica levels should not exceed exposure limits established by local jurisdictions, and identified in this safety data sheet. 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

Crystalline Silica (Quartz) (respirable)

County	OEL mg/m ³	Adopted by/ Law denomination	OEL Name (if specific)
Denmark	0.1	Direktoratet for Arbejdstilsynet	Threshold Limit Value (TLV)
France	5 or 25k/Q	Ministère de l'Industrie (RGIE)	Empoussiérage de référence
	0.1	Ministère du Travail	Valeur limite de Moyenne d'Exposition (VME)
Ireland	0.05	2002 Code of Practice for the Safety, Health & Welfare at Work (CoP)	
Netherlands	0.075	Ministerie van Sociale Zaken en Werkgelegenheid	Maximaal Aanvaarde Concentratie (MAC)
Norway	0.1	Direktoratet for Arbejdstilsynet	Administrative Normer for Forurensing I Arbeidsmiljøet
Sweden	0.1	National Board of Occupational Safety and Health	Yrkeshygieniska Gränsvärden
UK	0.1	Health & Safety Executive	Workplace Exposure Limits (WEL)

Exposures Limits are based on an 8-hour time weighted average (TWA) unless otherwise stated.

Calcium Silicate (Hydrate), Cellulose and other non-hazardous ingredients have not been listed as Crystalline Silica (Quartz) (respirable) is the most hazardous substance and all control measures must comply with the most hazardous substance.

Other Limits Recommended: Other countries may have exposure limits that vary from those published above. Respirable crystalline silica exposure limits most commonly range between 0.05 to 0.30 mg/m³ for an 8-hour TWA exposure. Please check with your local country to verify the most current applicable exposure limits.

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

Personal Protection: When handling products that may generate silica dust: (1) follow our recommended cutting practices to limit the release of dust; (2) work only in outdoor areas with ample ventilation, whenever possible, (3) use a fiber cement shear for cutting or, where not feasible, use a Hardiblade™ and dust-reducing circular saw attached to a HEPA vacuum; (4) warn others in the immediate area; (5) wear a properly-fitted, dust mask or respirator (e.g. FFP1) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures.

Respiratory: If respirators are selected, use and maintain in accordance with local requirements (e.g., EN 149) 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. Comply with all other applicable national laws

Eye: When cutting material, dust resistant safety goggles/glasses should be worn and used in compliance with local requirements.

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.
2. Use one of the following methods based on the required cutting rate:

Best

- Score and snap using carbide-tipped scoring knife or utility knife
- Shears (Pneumatic or Handheld)

Good

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

Minimum *(for low to moderate cutting only)*

- Dust reducing circular saw with Hardieblade™ saw blade
- Hand Saw with hardened teeth

Cutting Indoors

- Cut only using score and snap or shears (manual, electric or pneumatic)
- Position cutting station in well-ventilated area

Sanding/Rebating/Drilling/Other Machining

If sanding, rebating, drilling, or other machining is necessary, you should always wear a dust respirator in compliance with local requirements (e.g., EN 149, FFP1) and warn others in the immediate area.

Clean-Up

During clean up, 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 Odour: Solid gray boards with varying dimensions according to product

Vapor Pressure:	Not Relevant	Flash Point:	Not Relevant
Specific Gravity:	Not Relevant	Auto ignition Temp:	Not Relevant
Flammability Limits:	Not Relevant	Volatility:	Not Relevant
Boiling Point:	Not Relevant	Solubility in Water:	Not Relevant
Melting Points:	Not Relevant	Evaporation Rate:	Not applicable

Section 10. Stability and Reactivity

Stability: Crystalline silica is 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 oxidising agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride or oxygen difluoride may cause fires and/or explosions.

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:

LD50: Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

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 fibre 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 regulations.

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:	Local regulations may apply

Section 15. Regulatory Information

No additional regulatory conditions apply

WARNING

WARNING: AVOID BREATHING SILICA DUST

James Hardie products contain respirable crystalline silica, which is considered by IARC 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 a fiber cement score and snap knife or guillotine for cutting or, where not feasible, use a Hardiblade™ and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area; (4) wear a properly-fitted, dust mask or respirator (e.g. FFP1) 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 available at www.jameshardieeu.com or by calling your local country telephone number. **FAILURE TO ADHERE TO OUR WARNINGS, MSDS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

James Hardie Europe B.V.
Strawinskylaan 3077
1077 ZX Amsterdam,
The Netherlands

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