

MATERIAL SAFETY DATA SHEET

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Section 1. Chemical Products and Company Identification**Product Name/Trade Names:**

HardieFloor™

Other Names: Fibre-cement, Fibre-reinforced cement

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

European Supplier James Hardie EUROPE BV, SOM BUILDING 3rd Floor Gustav Mahlerlaan 42 1082 MC Amsterdam, The Netherlands

Manufacturer: James Hardie building Products LTD, 26300 La Alameda, Suite 250, Mission Viejo, California 92691, USA

Effective date: 20 January 2012.

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

Substance Name	CAS Number		EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-874-4	30-40%
Calcium Silicate (Hydrate)	65997-15-1	Not a hazardous material for shipping purposes	266-043-4	45-55%
Cellulose	9004-34-6	Not a hazardous material for shipping purposes	232-674-9	<15%
Calcium Aluminium Silicate hydrate	Not coded	Not a hazardous material for shipping purposes	Not coded	5-15%
Other non hazardous ingredients		Not a hazardous material for shipping purposes		<10%

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

Section 2. Hazardous Ingredients/Identity Information

Substance Name	CAS Number		EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	Not a hazardous material for shipping purposes	238-874-4	30-40%
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Section 3. Hazards Identification

This product is not currently classified 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
	R49	Can cause cancer by inhalation
Safety Phrase	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 (dry sweeping should not be attempted). 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

Country	Quartz	Adopted by/Law denomination	OEL Name (if specific)
Austria	0,15	Bundesministerium für Arbeit und Soziales	Maximale ArbeitsplatzKonzentration (MAK)
Belgium	0,1	Ministère de l'Emploi et du Travail	
Bulgaria	0,07	Ministry of Labour and Social Policy and Ministry of Health. Ordinance n°13 of 0/12/2003	Limit Values
Cyprus	10klQ (1)	Department of Labour Inspection. Control of factory atmosphere and dangerous substances in factories, Regulations of 1981	
Czech Republic	0,1	Governmental Directive n°441/2004	
Denmark	0,1	Direktoratet for Arbejdstilsynet	Threshold Limit Value
Estonia	0,1		
Finland	0,2	National Board of Labour Protection	Occupational Exposure Standard
France	5 or 25klQ, 0,1	Ministère de l'Industrie (RGIE) Ministère du Travail	Empoussiérage de référence Valeur limite de Moyenne d'Exposition
Germany	/(2)	Bundesministerium für Arbeit	Maximale ArbeitsplatzKonzentration (MAK)
Greece	0,1	Legislation for mining activities	
Hungary	0,15		
Ireland	0,05	2002 Code of Practice for the Safety, Health & Welfare at Work (CoP)	
Italy	0,05	Associazione Italiana Degli Igienisti Industriali	Threshold Limit Values (based on ACGIH TLVs)
Lithuania	0,1	Dël Lietuvos higienos normos HN 23:2001	Ilgalaikio poveikio ribinė vertė (IPRV)
Luxembourg	0,15	Bundesministerium für Arbeit	Maximale ArbeitsplatzKonzentration (MAK)
Malta	/ (3)	OHSA – LN120 of 2003, www.ohsa.org.mt	OELVs
Netherlands	0,075	Ministerie van Sociale Zaken en Werkgelegenheid	Maximaal Aanvarde Concentratie (MAC)
Norway	0,1	Direktoratet for Arbejdstilsynet	Administrative Normer (8hTWA) for Forurensing I Arbeidsmiljøet
Poland	0,3		
Portugal	0,05	Instituto Portuges da Qualidade, Hygiene & Safety at Workplace NP1796:2004	Threshold Limit Value
Romania	0,1	Government Decision n° 355/2007 regarding workers' health surveillance. Government Decision n° 1093/2006 regarding carcinogenic agents (in Annex 3: Quartz, Cristobalite, Tridymite).	
Slovakia	0,1		

Country	Quartz	Adopted by/Law denomination	OEL Name (if specific)
Slovenia	0,15		
Spain	0,1	Instrucciones de Técnicas Complementarias (ITC) Orden ITC/2585/2007	
Sweden	0,1	National Board of Occupational Safety and Health	Yrkeshygieniska Gränsvärden
Switzerland	0,15		Valeur limite de Moyenne d'Exposition
UK	0,1	Health & Safety Executive	Workplace Exposure Limits

(1) - Q : quartz percentage – K=1

(2) - Germany has no more OEL for quartz. Employers are obliged to minimize exposure as much as possible, and to follow certain protective measures.

(3) - When needed, Maltese authorities refer to values from the UK for OELVs which do not exist in the Maltese legislation.

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 HardieBlade[®] 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. FFP 2/3) 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, FFP 2/3) 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 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

Flash Point: Not Relevant

Auto ignition Temp: Not Relevant

Volatility: Not Relevant

Solubility in Water: 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 oxidizing 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**HEALTH WARNING – AVOID BREATHING DUST**

James Hardie® products contain crystalline silica. This mineral is found everywhere in the world – often in the form of sand - and, therefore, commonly used in many construction products (for example brick, concrete, glass wool and abrasives). The mineral itself is inert, but certain building practices such as drilling, high speed cutting and abrading can release fine particulate dust which may constitute a health hazard.

Excessive or protracted inhalation of fine particle silica dust can lead to a lung disease called silicosis. There is also some evidence that it may increase the risk of lung cancer if inhaled for prolonged periods. Smoking may also exacerbate this risk. Like smoking, the risk from fine particle silica dust is time and concentration dependent.

CONTROL:

To suppress or to reduce excessive inhalation of fine particle silica dust the following steps should be taken to protect operatives who work with products containing silica dust:

- During fabrication operate outdoors or in well ventilated space in a separate area if available or away and down-wind from other operatives;
- Use low speed, low dust cutting tools – Score-and snap-knife, HardieGuillotine®, HardieBlade® fitted to a circular saw connected to a dust extraction HEPA filter vacuum cleaner (see James Hardie® tools).
- When cutting, drilling or abrading always wear a FFP2/3 dust control or full face mask adjusted and fitted in conformity with regulatory recommendations and affixed with CE marking and/or fully certified to the relevant EN standards if applicable;
- Keep the working environment clean and remove debris as soon as possible;
- At the end of the operation remove dust from clothes, tools and work area with a HEPA filter vacuum cleaner or damp with water to suppress the dust before sweeping.

Remember, James Hardie® products are no more dangerous than many other building materials containing crystalline silica sand. We hope through this information to engage in effective education of the construction industry and build upon the requirements of national health and safety regulations.

For more information, see installation instructions available on www.jameshardieeu.com or call James Hardie.

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