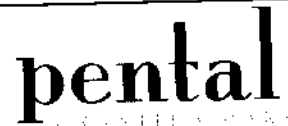


MATERIAL SAFETY DATA SHEET

Effective Date: June 21, 2006
Revised: August 31, 2006



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or Dial 911 American Poison Control Center

SECTION 1 – PRODUCT IDENTIFICATION

Material Name: CERAMIC TILE		NOT A CONTROLLED PRODUCT	
Chemical Family Inorganic Compound	Chemical Formula Mixture	Molecular Weight Not Applicable	
Material Use Aggregates		DOT Identification No. None	
Trade Name and Synonyms Clay tile			

SECTION 2 – COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENTS CHEMICAL NAME	CAS REGISTRY NO.	% by WEIGHT (approximate)	MSHA/OSHA PEL	ACGIH TLV-TWA
Silicon Dioxide*, SiO ₂ Crystalline Silica as Quartz	14808-60-7	14-18	(R) 10 mg/m ³ / (% SiO ₂ + 2) § (T) 30 mg/m ³ / (% SiO ₂ + 2) §	(R) 0.1 mg/m ³ Not Established
Clays Al ₂ O ₃ – 2SiO ₂ – 2H ₂ O	1332-58-7	30-40	(R) 5 mg/m ³ (T) 15 mg/m ³	(R) 2 mg/m ³ (T) 10 mg/m ³

*: The composition of SiO₂ may be up to 100% crystalline silica. (R): Respirable (T): Total §: Crystalline silica is normally measured as respirable dust. The OSHA standard also presents a formula for calculation of the PEL based on total dust: 30 mg/m³ / (% SiO₂ + 2). SILICA-CONTAINING RESPIRABLE DUST THAT CAN ACCUMULATE IN THE LUNGS MAY LEAD TO ACUTE SILICOSIS, A RAPIDLY PROGRESSIVE, INCURABLE LUNG DISEASE. AVOID DUST PRODUCTION BY CUTTING UNDER WATER, AND ALWAYS WEAR PROPER PROTECTIVE BREATHING GEAR AS OUTLINED IN SECTION 8. HAND, EYE, AND OTHER BODY PARTS MAY NEED PROTECTION IF CUTTING OR REMOVING INSTALLED CERAMIC TILES. OTHER HAZARDS ARE DUE TO THE EXCESSIVE WEIGHT OF CERAMICS WHEN STACKED. USE CRATES THAT WILL NOT BREAK, AND PALLET RACKS RATED HIGHER THAN THE LOAD BEING STORED. BE AWARE OF UNSECURED STACKS OF TILE AND BREAKING CRATES. CERAMIC TILE PRODUCTS ARE MIXTURES OF PREDOMINANTLY CLAYS AND OTHER NATURAL OCCURRING MINERALS THAT HAVE BEEN MIXED WITH WATER AND FIRED IN A HIGH TEMPERATURE KILN. PROPER INSTALLATION INSURES THESE PRODUCTS AS SAFE.

SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor Tiles are brittle, solid, and manufactured in various colors, shapes, and sizes. Odorless. Surface color is often a different color than the body of the tile	Specific Gravity 1.2 – 1.5
Boiling Point, Melting Point Not applicable, Not available (>2200 °F)	Vapor Density in Air (Air = 1) Not applicable
Vapor Pressure Not applicable	% Volatile, by Volume 0%
Evaporation Rate 0%	Solubility in Water Negligible

SECTION 4 – STABILITY AND REACTIVITY DATA

Stability Stable	Hazardous Polymerization Will not occur
Conditions to Avoid Avoid contact with incompatible materials (see below) and exposure to crystalline silica (quartz) dust particles, usually generated while cutting, crushing, sawing, or removing.	
Incompatibility (material to avoid) Avoid contact with acids. Some acids damage and/or discolor the surface of ceramics.	
Hazardous Decomposition Products These products do not contain asbestos. Under normal conditions these products do not release hazardous materials after installation and are not hazardous waste should disposal be necessary. Concern comes from inhaling crystalline silica dust released while cutting or removing tiles.	

SECTION 5 – HAZARDS AND TOXICITY

Exposure Limits

Below is a definition of exposure limits in the workplace, that is especially important when contact with this product and other chemicals is concurrent.
Unless specified otherwise, limits are eight-hour time-weighted averages (TWA). Limits for cristobalite and tridymite (other forms of crystalline silica) are equal to one-half of the limits for quartz.

Inhalable Particulate Limits

- ◆ 2001 ACGIH TLV[®] (inhalable /total particulate, not otherwise specified) not established
- ◆ 2001 ACGIH TLV[®] = 0.1 mg/m³ (respirable particulate, not otherwise specified)
- ◆ OSHA PEL = 30 mg/m³ (total particulate, not otherwise regulated)
- ◆ OSHA PEL = 10 mg/m³ (respirable particulate, not otherwise regulated).

Respirable Limit, Crystalline Silica (SiO₂ or Quartz)

ACGIH TLV[®] = 0.1 mg/m³; MSHA and OSHA PEL = 10 mg/m³ (%SiO₂ + 2), for respirable dust containing crystalline silica.

Total Dust Limits, Respirable and Nonrespirable 1973 ACGIH TLV® = not established. NIOSH IDEL = 25 mg/m³ for respirable dust.		
Route of Entry <input checked="" type="checkbox"/> Skin Contact <input type="checkbox"/> Skin Absorption	<input checked="" type="checkbox"/> Eye Contact <input checked="" type="checkbox"/> Ingestion	<input checked="" type="checkbox"/> Acute Inhalation <input checked="" type="checkbox"/> Chronic Inhalation
Effects of Acute Exposure to Product Skin No acute effects come from exposure to intact tile. Direct contact with broken or cut tile produces a potential for cuts to the hands and exposed body parts by mechanical abrasion. Skin absorption is not a significant route of exposure. Eyes Acute effects such as eye irritation may occur with high levels of dust exposure during dry cutting or removal of installed tile by mechanical abrasion with discomfort or pain, local redness, and swelling of the conjunctiva. Inhalation If inhaled, dust may cause nose, throat, and respiratory tract irritation by mechanical abrasion. Exposures in <u>excess</u> of allowable occupational exposure limits may cause coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever. In very rare cases, symptoms of acute silicosis (a nodular pulmonary fibrosis), associated with exposure to respirable crystalline silica, may develop following exposure to extremely dusty environments generated from tile. Signs such as labored breathing and fatigue may indicate silicosis; however, these symptoms can arise from many other causes. Ingestion Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury. Ingestion of large amounts may cause gastrointestinal irritation and/or blockage. Use of ceramic tile for construction purposes should not cause acute toxic effects. However, inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions. Exposure to dust may aggravate existing skin and or eye conditions.		
Effects of Chronic Exposure to Ceramic Dust No chronic effects occur with exposure to intact tile. Quartz is a natural constituent of the Earth's crust and does not chemically combine with any other substance. Ceramic tile contains 14% to 18% silica. Exposure to silica-containing dust at any time poses a potential health hazard. Repeated overexposure to very high levels above allowable occupational exposure limits of respirable crystalline silica (quartz, cristobalite, tridymite) for periods of six months or more have caused silicosis (a nodular pulmonary fibrosis), and is associated with pulmonary tuberculosis (TB), bronchitis, emphysema, and other airway diseases. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Not all individuals with silicosis will exhibit symptoms (signs) of the disease. Symptoms can appear at any time, even years after exposure has ceased. Symptoms include (but are not limited to) shortness of breath, diminished work capacity, cough, fever, right heart enlargement and/or failure, weight loss, and chest pain. These symptoms can arise from many other causes. Excessive inhalation of dust may result in the development of autoimmune disorders, respiratory disease, including silicosis, pneumoconiosis, and pulmonary fibrosis, chronic renal disease, and other adverse health effects. Persons with silicosis have an increased risk of mycobacterial or fungal infections. Smoking may increase the risk of developing lung disorders, including emphysema and lung cancer. Respirable dust containing newly broken silica particles are more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size.		
Irritancy of Product Eyes	Sensitization to Product None	Synergistic Materials None reported

SECTION 6 – FIRST AID MEASURES

Eyes

Immediately rinse contaminated eye(s) with gently running lukewarm water (saline solution is preferred) for at least 15 minutes, while holding the eyelid(s) open. In the case of an embedded particle in the eye, or if irritation occurs, consult a physician. Beyond flushing, do not attempt to remove material from the eye(s).

Skin

Carefully and gently, brush the contaminated body surfaces in order to remove all traces of stone dust. Use a brush, cloth, or gloves. Remove all contaminated clothing. Wash work clothes after each use. Wash dust-exposed skin with soap and water before eating or drinking. Contact a physician if irritation persists or later develops.

Inhalation

Move source of dust away from person, or move victim to source of fresh air. Dust in throat and nasal passages should clear spontaneously. Obtain medical attention immediately. If victim does not breath, give artificial respiration. Contact a physician immediately.

Ingestion

If victim is conscious, wash out mouth with water. Have conscious person drink several glasses of water. Induce vomiting. Contact a physician immediately. Never give anything by mouth to an unconscious or convulsing person.

General Advise

Consult a physician for all exposures except minor instances of inhalation.

SECTION 7 – REGULATORY INFORMATION

Carcinogenicity Reproductive Effects Teratogenicity Mutagenicity
Ceramics are listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA). In October 1996, an IARC Working Group re-assessing crystalline silica, a component of ceramic tile, designated respirable crystalline silica as carcinogenic (Group 1). The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications come from sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

CALIFORNIA PROPOSITION 65: WARNING (Safe Drinking Water and Toxic Enforcement Act of 1986)
Component Ceramic does not appear on the above regulatory listing. However, crystalline silica is a component of this product. California regulates crystalline silica (airborne particles of respirable size) under the state of California Safe Drinking Water and Toxic Enforcement Act of 1986 as a cause of cancer.

CWA 311 – Clean Water Act List of Hazardous Substances
Ceramic does not appear on the Clean Water Act (CWA) list of hazardous substances.

Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) / The Emergency Planning and "Community Right-to-Know" Act (EPCRA) / Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Component Ceramic has been reviewed against the following regulatory listings:

- ◆ **Section 302 – Emergency Planning Notification. Extremely Hazardous Substances (EHS) List and Threshold Planning Quantity (TPQ). (40 CFR, Part 355, Section 30): Not listed.**
- ◆ **Section 304 – Emergency Release Notification. Extremely Hazardous Substances (EHS) and Reportable Quantity (RQ) List. (40 CFR, Part 355, Section 40): Not listed.**
- ◆ **Section 311/312 – Hazard Categories (40 CFR, Part 370): This product is regulated under CFR 1910.1200 (OSHA Hazard Communication).**
- ◆ **Section 313 – Toxics Release Inventory (TRI). Toxic Chemical List (40 CFR, Part 372): Not listed.**

Transportation – Hazardous Materials Regulations (USA) & Transportation of Dangerous Goods (TDG) Regulations (Can).

Ceramic tile does not appear on the above regulatory listings.

Toxic Substances Control Act (TSCA)

All naturally occurring components of this product are automatically included in the USEPA TSCA Inventory List per 40 CFR 710.4 (b). Ceramic tile is exempt from reporting under the inventory update rule.

Canadian Environmental Protection Act (CEPA)

Quartz, a component of this product, appears on the Domestic Substances List (DSL).

ANSI/NSF 60 – Drinking Water Treatment Additives.

Not applicable.

FDA – U.S. Food and Drug Administration, Department of Health and Human Services

Not applicable.

SECTION 8 – PREVENTATIVE MEASURES, PERSONAL PROTECTION, AND CONTROLS

Personal Protective Equipment (PPE)



Wear clean, dry gloves, full-length pants over boots, long sleeved shirt buttoned at the neck, head protection, and approved eye protection selected for the working conditions.

Eyes



Wear safety glasses with side shields as minimum protection. Wear dust goggles when excessively (visible) dusty conditions are present or anticipated.

Skin

Clothing, boots, and gloves that fully covers all skin provides the best protection.

Respiratory Protection



- ◆ Wear a NIOSH approved dust respirator for respirable quartz levels that exceed or are likely to exceed an 8-hr TWA of 0.1 mg/m³.
- ◆ Wear a NIOSH approved HEPA filter respirator for respirable quartz levels that exceed or are likely to exceed an 8-hr TWA of 0.5 mg/m³.
- ◆ Wear a NIOSH approved positive pressure, full-face respirator or equivalent if respirable quartz levels exceed or are likely to exceed an 8-hr TWA of 5 mg/m³.
- ◆ Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user-training program, respirator repair and cleaning, respirator fit testing, and other requirements.

Hygiene

Wash work clothes after use and dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Avoid breathing dust, skin, and eye contact.

Engineering Controls

- ◆ **Ventilation:** Use local exhaust, general ventilation, or natural ventilation adequate to maintain exposures below appropriate exposure limits.
- ◆ **Monitor respirable dust and quartz levels regularly.**
- ◆ **Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee work stations.**

SECTION 9 – STORAGE AND HANDLING PRECAUTIONS

Protection

Respirable crystalline silica-containing dust usually appears during processing, cutting, drilling, routing, storage, and removal. Do not breathe dust. Always wear protection from breathing dust while processing. Use the personal protection and controls identified in Section 8 of this MSDS as appropriate. Avoid contact with skin and eyes.

Storage

Do not store near food and beverages or smoking materials. Shelf life is unlimited.

Handling

This product is not an abrasive blasting medium or for foundry applications. Do not stand on stacked tiles, as they may be unstable. Use appropriate equipment for handling large pieces: forklift, jacks, etc. and follow all safety rules. Store tiles with appropriately strong racks and crates designed to handle large loads.

SECTION 10 – SPILL OR LEAK CLEANUP AND WASTE DISPOSAL

Material Release or Spill

- ◆ Spilled material where dust occurs, may overexpose cleanup personnel to respirable crystalline silica-containing dust.
- ◆ Use the personal protection and controls identified in Section 8 of this MSDS as appropriate.
- ◆ Wetting of spilled material, vacuuming, and/or use of respiratory protective equipment may be necessary.
- ◆ Spilled material must not be dry swept. Use water or a vacuum instead.
- ◆ Prevent spilled material from inadvertently entering streams, drains, or sewers.
- ◆ Train all personnel on handling and safety rules for working with ceramics, forklifts, sampling, etc. as needed.

Waste Disposal

- ◆ Collect and reuse clean material.
- ◆ Waste materials should be disposed of in a landfill certified to accept such materials in accordance with applicable federal, state, provincial, and local environmental laws and regulations.

SECTION 11 – FIRE AND EXPLOSION HAZARD DATA

Flammable

Yes No

Extinguishing Media

Ceramics do not burn. Use extinguishing media appropriate to surrounding fire conditions.

Special Fire Fighting Procedures

Ceramic is non-flammable. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetra fluoride.

Flash point (°C) and Method
Not applicable

Upper flammable limit
Not applicable

Lower flammable limit
Not applicable

Auto Ignition Temperature (°C)
Not applicable

TDG Flammability Classification
Not applicable

Hazardous Combustion Products
None

Dangerous Combustion Products **None**

EXPLOSION DATA

Sensitivity to Chemical Impact
Not applicable

Rate of Burning
Not applicable

Explosive Power
Not applicable

Sensitivity to Static Discharge
Not applicable

SECTION 12 – TRANSPORT INFORMATION

Dot Hazard Classification – 49 CFR 172.101
Non-Regulated by D.O.T.

Placard Required
None

Label Required
Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200 (f)}, and applicable state and local regulations. Shipping description: Ceramic Tiles.

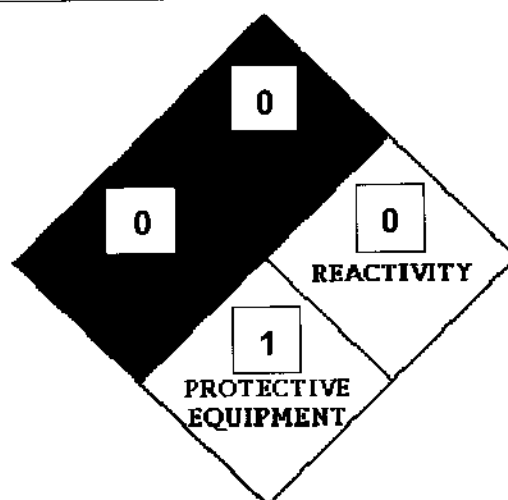
RQ (Reportable Quantity) – 49 CFR 172.101
Not applicable

MATERIAL IDENTIFICATION SYSTEMS – LABELING

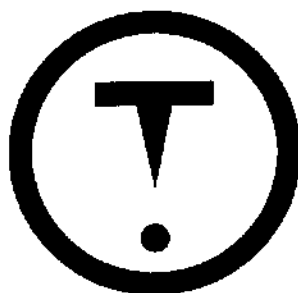
[May be required by the OSHA Hazard Communication standard {29 CFR 1910.1200 (f)}, and applicable state and local regulations]

CERAMICS	
HEALTH	0
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	A

Hazardous Materials Identification System (U.S.)



National Fire Protection Association (U.S.)
 Where:
 0 = Least 1 = Slight 2 = Moderate
 3 = High 4 = Extreme



D-2A

Workplace Hazardous Materials Information System (Canada)
 Classification D2A Materials causing other toxic effects

SECTION 13 – GLOSSARY

Agencies and Regulations

ACGIH: American Conference of Government Industrial Hygienists
CFR: US Code of Federal Regulations
DOT: US Department of Transportation
DSL: Domestic Substances List
IARC: International Agency for Research on Cancer
NIOSH: National Institute for Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration, US Department of Labor
SARA: Title III of the Superfund Amendments and Reauthorization Act, 1986

Abbreviations and Definitions

- ◆ **IDLH:** Immediately Dangerous to Life and Health
- ◆ **mg/m³** = milligrams of substance per cubic meter of air
- ◆ **MSHA PEL** = Permissible Exposure Limit of the Mine Safety and Health Administration (MSHA)
- ◆ **OSHA PEL** = Permissible Exposure Limit of the Occupational Safety and Health Administration (OSHA)
- ◆ **TLV[®]** = Threshold Limit Value of the American Conference of Governmental Industrial Hygienists (ACGIH)
- ◆ **TWA** = Time-Weighted Average
- ◆ **Inhalable** = All dust capable of entering the human respiratory tract.
- ◆ **Respirable dust** = is airborne material which is capable of penetrating to the gas-exchange region of the lungs.

Sources Used

NFPA, TDG, CSST, RSST, (LSRO-FASEB), Hazardous Products Act, Environment Canada, Enviroguide, OSHA, ACGIH, IARC, NIOSH, CFR, NTP, HSDB, EPA SRS, MSHA, Geology of the nonmetallic, Health Canada, APAC Inc MSDS, American Olean Monterrey Wall Tile MSDS 3-15-05.

SECTION 14 – PREPARATION OF THIS DOCUMENT

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Notice

Pental Granite & Marble believes the information contained herein is accurate. The suggested precautions and recommendations come from recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance, as one cannot anticipate all use situations. However, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules, insurance requirements, or safety practices. In addition, do not use this product in a manner that could cause harm.

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.