MATERIAL SAFETY DATA SHEET

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pental GRANITE & MARBLE

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SECTION 1 – PRODUCT IDENTIFICATION

Material Name: **PORCELAIN 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, Porcelain Tile**		

SECTION 2 – COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENTS CHEMICAL NAME	CAS REGISTRY NO.	% by WEIGHT (approximate)	MSHA/OSHA PEL	ACGIH TLV-TWA
Talc, $Mg_3Si_4O_{10}(OH)_2$	14807-96-6	10-50	20 mppcf	2 mg/m^3
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
Calcium Carbonate, $CaCO_3$	471-34-1	<1.0	(R) 5 mg/m^3 (T) 15 mg/m^3	Not Established (T) 10 mg/m^3
Surface glaze may contain trace amounts of Cadmium, Zinc, Chromium compounds	 7440-43-9 7440-66-6 7440-47-3	 <1.0 <1.0 <1.0	Not Established	Not Established

*: The composition of SiO_2 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/m^3 / (% SiO_2 + 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 TILES. OTHER HAZARDS ARE DUE TO THE EXCESSIVE WEIGHT OF PORCELAIN 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. PORCELAIN TILE PRODUCTS ARE MIXTURES OF PREDOMINANTLY CLAYS AND OTHER NATURAL OCCURRING MINERALS THAT HAVE BEEN MIXED WITH WATER AND FIRED TWICE 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. Glaze surface color varies and is often a different color than the tile's body**	Specific Gravity **1.2 – 1.5**
Boiling Point, Melting Point **Not applicable**, **Not available (>2200 ℉)**	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 porcelain.

Hazardous Decomposition Products

These products do not contain asbestos. Under normal conditions these products do not release hazardous materials after installation and are not considered hazardous waste should disposal be necessary. The main concern would come from crystalline silica being released as dust while cutting or removing, and being inhaled.

SECTION 5 – HAZARDS AND TOXICITY

Exposure Limits

When exposure to this product and other chemicals is concurrent, the exposure limit must be defined in the workplace.

Unless specified otherwise, limits are expressed as 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® = .1 mg/m^3 (respirable particulate, not otherwise specified)**
- **OSHA PEL = 30 mg/m^3 (total particulate, not otherwise regulated)**
- **OSHA PEL = 10 mg/m^3 (respirable particulate, not otherwise regulated).**

Respirable Limit, Crystalline Silica (SiO_2 or Quartz)

ACGIH TLV® = 0.1 mg/m^3; MSHA and OSHA PEL = 10 mg/m^3 (%SiO_2 + 2), for respirable dust containing crystalline silica.

Total Dust Limits, Respirable and Nonrespirable

1973 ACGIH TLV® has not been established

NIOSH IDEL = 25 mg/m^3.

Route of Entry		
☑ Skin Contact	☑ Eye Contact	☑ **Acute Inhalation**
☐ Skin Absorption	☑ Ingestion	☑ **Chronic Inhalation**

Effects of Acute Exposure to Product

Skin **No acute effects from exposure to intact tile are known. 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 expected to be a significant exposure route.**

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 in the form of dust, it may cause nose, throat, and respiratory tract irritation by mechanical abrasion. Exposures in excess of allowable occupational exposure limits may cause coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur. 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 dust. 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 gastro-intestinal irritation and/or blockage.**

Use of porcelain 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 Porcelain Dust

No chronic effects are known for exposure to intact tile. Quartz is a natural constituent of the Earth's crust and is not chemically combined with any other substance. Porcelain 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 has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Recent epidemiologic studies demonstrate that workers exposed to elevated silica concentrations have a significant risk of developing chronic silicosis.

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 Advice

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

SECTION 7 – REGULATORY INFORMATION

☑ Carcinogenicity ☐ Reproductive Effects ☐ Teratogenicity ☐ Mutagenicity

Porcelain is 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 porcelain 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 are based on 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 Porcelain 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

Porcelain 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 Porcelain 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).

Porcelain 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). Porcelain 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. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

Skin

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

Respiratory Protection 

- **Wear a NIOSH approved dust respirator when respirable quartz levels exceed or are likely to exceed an 8-hr TWA of 0.1 mg/m^3.**
- **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/m^3.**
- **Wear a NIOSH approved positive pressure, full face respirator or equivalent when respirable quartz levels exceed or are likely to exceed an 8-hr TWA of 5 mg/m^3.**
- **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 dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use. Avoid breathing dust. Avoid skin and eye contact.

Engineering Controls

- **Ventilation: Use local exhaust, general ventilation, or natural ventilation adequate to maintain exposures below appropriate exposure limits.**
- **Respirable dust and quartz levels should be monitored 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 may be generated during processing, cutting, drilling, routing, storage, and removal. Do not breathe dust. The personal protection and controls identified in Section 8 of this MSDS should be used as appropriate. Avoid contact with skin and eyes. Always wear protection from breathing dust while processing.

Storage

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

Handling

This product is not intended or designed for, and should not be used as an abrasive blasting medium or for foundry applications. Do not stand on piles of material, it may be unstable. Use appropriate equipment for handling large pieces: fork lift, 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 can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust.**
- **The personal protection and controls identified in Section 8 of this MSDS should be used as appropriate.**
- **Wetting of spilled material, vacuuming, and/or use of respiratory protective equipment may be necessary.**
- **Do not dry sweep spilled material.**
- **Prevent spilled material from inadvertently entering streams, drains, or sewers.**
- **Train all personnel on handling and safety rules for working with porcelain, fork lifts, 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

Porcelain does not burn. Use extinguishing media appropriate to surrounding fire conditions.

Special Fire Fighting Procedures

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

Flash point (℃) and Method	Upper flammable limit	Lower flammable limit
Not applicable	**Not applicable**	**Not applicable**
Auto Ignition Temperature (℃)	TDG Flammability Classification	Hazardous Combustion Products
Not applicable	**Not applicable**	**None**

Dangerous Combustion Products **None**

EXPLOSION DATA

Sensitivity to Chemical Impact	Rate of Burning	Explosive Power	Sensitivity to Static Discharge
Not applicable	**Not applicable**	**Not applicable**	**Not applicable**

SECTION 12 – TRANSPORT INFORMATION

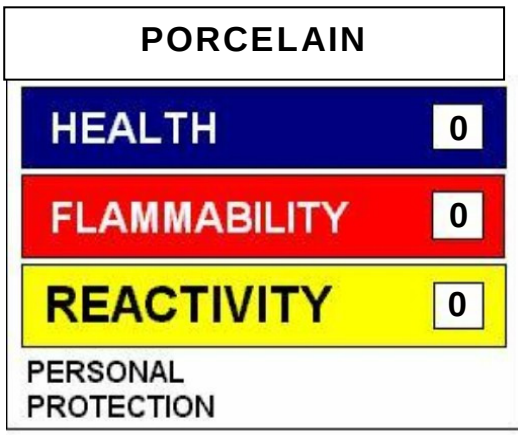
Dot Hazard Classification – 49 CFR 172.101
Non-Regulated by D.O.T.

Placard Required
None

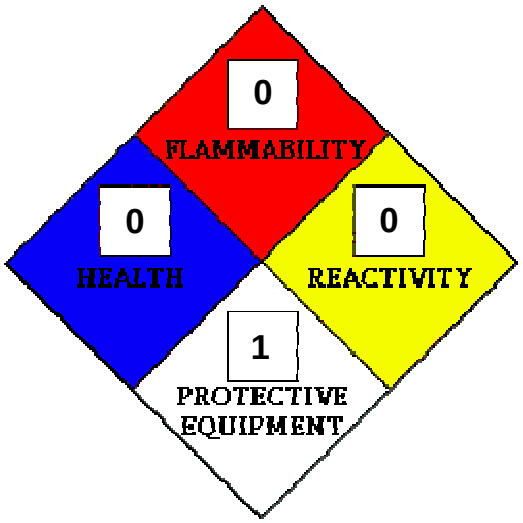
Label Required
Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200 (f)}, and applicable state and local regulations. Shipping description: Porcelain Tiles.

RQ (Reportable Quantity) – 49 CFR 172.101
Not applicable

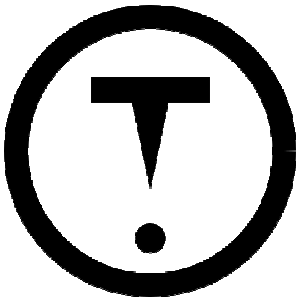
MATERIAL IDENTIFICATION SYSTEMS – LABELING
[May be required by the OSHA Hazard Communication standard {29 CFR 1910.1200 (f)}, and applicable state and local regulations]



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

- **IDLH: Immediately Dangerous to Life and Health**
- **mg/m^3 = 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**

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 nonmatallics, Health Canada, APAC Inc MSDS, American Olean Monterrey Wall Tile MSDS 3-15-05, Marble Institute of America Technical Bulletin "Preparing a Generic MSDS for Natural Stone."

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Notice

Pental Granite & Marble believes the information contained herein is accurate. The suggested precautions and recommendations are based on 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 product in a manner that could cause harm.

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