

MATERIAL SAFETY DATA SHEET



Effective Date: August 2001
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for Iron Blast Furnace Slag, Ground

1. PRODUCT/COMPANY IDENTIFICATION

Manufacturer's Name & Address:

Titan Florida
11000 NW 121 Way
Medley, FL 33178

Trade Name:

Penncem

Chemical Name & Synonyms:

Penncem, IBFS

Telephone Number for Information:

1.800.458.4250

Emergency Telephone:

1.800.965.9896

Department of Transportation Identification No.:

None

2. COMPOSITION INFORMATION

MAJOR COMPOUNDS

<u>Chemical Name</u>	<u>CAS Registry Number</u>	<u>% in this cement product</u>
Calcium oxide	CAS # 1305-78-8	29-42
Silicon dioxide	CAS # 7631-86-9	32-40
Magnesium oxide	CAS # 1309-48-4	8-19
Alumina	CAS # 1344-28-1	7-17
Iron oxide	CAS # 1309-37-1	0.1-1.5
Manganese oxide	CAS # 7439-96-5	0.2-1

3. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	N/A
Specific Gravity (H ₂ O = 1)	2.90-2.97
Vapor Pressure (mm Hg)	N/A
Melting Point	N/A
Vapor Density (AIR-1)	N/A
Evaporation Rate	N/A
Solubility in Water	0.1-0.5%
Appearance & Odor	Beige to white powder with traces of sulfur odor

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4. FIRE AND EXPLOSION HAZARD DATA

Flash Point	N/A
Extinguishing Media	N/A
Special Fire Fighting Procedures	None
Unusual Fire & Explosion Hazards	None
Flammable Limits	N/A
LEL	N/A
UEL	N/A

5. REACTIVITY DATA

Stability:	Stable.
Incompatibility:	None known.
Hazardous Decomposition or Byproducts:	Respirable dust particles may be generated when the product is handled.
Hazardous Polymerization:	Will not occur. No conditions to avoid.

6. HEALTH HAZARD DATA AND FIRST AID

EXPOSURE LIMITS:

Unless specified otherwise, limits are expressed as a time-weighted average (TWA) concentration for an 8-hour work shift of a 40-hour workweek. Limits for cristobalite and tridymite (other forms of crystalline silica) are equal to one-half the limits for quartz.

ABBREVIATIONS:

ACGIH TLV:	Threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH).
mg/m³:	Milligrams of substance per cubic meter of air.
NIOSH REL:	Recommended exposure limit of the National Institute for Occupational Safety and Health (NIOSH), expressed as a TWA concentration for up to a 10-hour work-day during a 40-hour workweek.
NIOSH STEL:	NIOSH Short Term Exposure Limit. This is a 15-minute TWA exposure that should not be exceeded at any time during a workday.
OSHA ACC:	Acceptable Ceiling Concentration set by the federal Occupational Safety and Health Administration (OSHA). Under OSHA regulations, an employee's exposure to an acceptable ceiling concentration shall not exceed at any time during an 8-hour shift the acceptable ceiling concentration limit given for the substance, except for a time period, and up to a concentration not exceeding the maximum duration and concentration allowed as specified under the subheading "acceptable maximum peak above ACC for an 8-hour shift". If no such subheading appears, then employee exposure shall never exceed the acceptable ceiling concentration limit.
OSHA PEL:	Permissible exposure limit of the federal Occupational Safety and Health Administration (OSHA).

Calcium Oxide CaO: OSHA PEL 5 mg/m³, ACGIH TLV 2 mg/m³, NIOSH REL 2 mg/m³.

Silicon Dioxide SiO₂ (Amorphous Silica): OSHA PEL [80 mg/m³ ÷ (% SiO₂)], ACGIH TLV (inhalable) 10 mg/m³, (respirable) 3 mg/m³; NIOSH REL (total dust) 6 mg/m³.

Magnesium Oxide MgO: OSHA PEL (respirable fraction) 5 mg/m³, (total dust) 15 mg/m³, ACGIH TLV (fume) 10 mg/m³.

Alumina Al₂O₃: OSHA PEL (respirable fraction) 5 mg/m³, (total dust) 15 mg/m³, ACGIH TLV (total dust) 10 mg/m³.

Iron Oxide Fe₂O₃: OSHA PEL 10 mg/m³, ACGIH TLV 5 mg/m³, NIOSH REL 5 mg/m³.

Manganese Oxide MnO: OSHA ACC 5 mg/m³, ACGIH TLV 0.2 mg/m³, NIOSH STEL 3 mg/m³, NIOSH REL 1 mg/m³.

Other Particulates: OSHA PEL (total particulate, not otherwise regulated) 15 mg/m³, (respirable particulate, not otherwise regulated) 5 mg/m³, ACGIH TLV (nuisance particulates) 10 mg/m³.

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HEALTH HAZARDS:

Primary Route(s) of Entry:

Inhalation: Yes

Skin: Yes

Ingestion: No

Acute:

Eye Contact: Minor irritation to the eyes. Direct contact by larger amounts of material or splashes of wet material may cause effects ranging from moderate eye irritation to chemical burns and blindness.

Inhalation: Dusts may irritate the nose, throat, and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of appropriate exposure limits.

Skin Contact: Exposure to dry material may cause drying of the skin with consequent mild irritation. Dry material contacting wet skin or exposure to moist or wet material may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation and blockage.

Chronic:

Inhalation: Inhalation of slag dust can cause inflammation of the lining of the nose.

Eye Contact: Exposure to slag dust may cause inflammation of the cornea.

Skin Contact: Hypersensitive individuals may develop allergic dermatitis.

Signs & Symptoms

of Exposure: Irritation of eyes, skin and/or respiratory system.

Medical Conditions

Generally Aggravated

by Exposure: Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions such as emphysema or asthma. Exposure may aggravate existing skin and/or eye conditions.

EMERGENCY & FIRST AID PROCEDURES:

Eyes: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or later develops.

Inhalation: Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

Skin: Wash with cool water and a pH-neutral soap or mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged direct exposure to wet product or prolonged wet skin exposure to dry product.

Ingestion: Do not induce vomiting. If person is conscious, give large quantity of water. Get immediate medical attention.

7. PERSONAL PROTECTION AND CONTROL MEASURES

Ventilation: Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits.

Other: Exposure levels should be monitored regularly. Exposure levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) ventilation, process enclosure, and enclosed employee work stations.

Respiratory

Protection: When exposure levels exceed or are likely to exceed appropriate exposure limits, follow MSHA or OSHA regulations, as appropriate, for use of NIOSH-approved respiratory protection equipment.

Skin Protection: Protective gloves, shoes and protective clothing that are impervious to water should be worn to avoid contact with skin.

Eye Protection: Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessive (visible) dust conditions are present or anticipated. Contact lenses should not be worn when working with this product.

Hygiene: Periodically wash exposed skin with a pH-neutral soap. Wash again before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use. If clothing becomes saturated with wet material, it should be removed and replaced with clean, dry clothing.

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8. STORAGE AND HANDLING PRECAUTIONS

Respirable dust may be generated during processing, handling, and storage. The personal protection and controls identified in Section VII of the MSDS should be applied as appropriate.

Keep product dry until used.

Do not store or handle near food and beverages or smoking materials.

9. SPILL, LEAK AND DISPOSAL PRACTICES

The personal protection and controls identified in Section VII of the MSDS should be applied as appropriate.

Steps to Be Taken if Material Is Released or Spilled: Use dry clean-up methods which do not disperse dust into the air. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment. Scrape up wet material and place in an appropriate container. Allow the material to "dry" before disposal.

Waste Disposal Method: Do not attempt to wash material down drains. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

NOTICE: Based on research of available data, Titan Florida believes that the information contained in this Material Safety Data Sheet is accurate. The suggested procedures are based on data and experience as of the date of preparation of the MSDS. The suggestions should not be confused with nor followed in violation of applicable laws, regulations, rules or insurance requirements. Titan Florida's voluntary preparation of this MSDS should not be construed, in any way, as an agreement to be subject to MSHA/OSHA jurisdiction, as applicable.