

PEMCO Corp.
 (PEMCO HOLDING CORP)
 5601 Eastern Avenue
 Baltimore, MD 21224-2791

TRANSPORTATION EMERGENCY

CALL CHEMTREC: 800-424-9300
 DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION

PEMCO INFORMATION PHONE.: (410) 633-9550

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: P-626-P
 PRODUCT CODE.....: ON66
 CHEMICAL FAMILY.....: Leadless Ceramic Powder
 CHEMICAL NAME.....: Frits, Chemical
 SYNONYMS.....: Silicate Glasses
 CAS NUMBER.....: 65997-18-4
 FORMULA.....: Mixture

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
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***** HAZARDOUS INGREDIENTS *****

Frits are produced from the chemical reactions which occur during the high temperature smelting of various raw materials to form a molten glass. This glass is rapidly cooled to produce granules or flakes. These may subsequently be milled to produce a powdered frit. Frit (glass) is an essentially insoluble substance which can contain some or all of the following hazardous chemicals (as defined in OSHA's Hazard Communication Standard):

Aluminum Oxide				
1344-28-1	OSHA :	15.00 mg/m3	*TWA-Total Dust	< 6 %
		5.00 mg/m3	*TWA-Respirable Dust	
	ACGIH:	10.00 mg/m3	*TWA	
* Aluminum (as Al)				

Boron Oxide				
1303-86-2	OSHA :	10.00 mg/m3	TWA-Total Dust	Proprietary %
		5.00 mg/m3	TWA-Respirable Dust	
	ACGIH:	10.00 mg/m3	TWA	

Product Code: ON66
 Approval date: 10/01/97

MSDS Page 1
 Continued on next page

2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
Silicon Dioxide (Amorphous) 7631-86-9	OSHA : 6.00 mg/m3 TWA ACGIH: 10.00 mg/m3 TWA-Total Dust	Proprietary %

3. HAZARDS IDENTIFICATION:

 * EMERGENCY OVERVIEW *
 * *
 * CAUTION! Color: Variable; Form: Powder; Flakes; Granules; *
 * Odor: Odorless; May cause eye, skin, and respiratory tract *
 * irritation; Harmful if inhaled or ingested; Irritating *
 * gases/fumes may be given off during burning or thermal *
 * decomposition. *

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Eye Contact; Skin Contact; Inhalation

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION.....: The hazardous ingredients listed for this product are incorporated into the glass structure of the frit, chemically reacted in the form of silicates or other essentially insoluble complexes. Exposure to the hazardous ingredients can occur if dust is inhaled and the ingredients dissolve out of the glass. Because of the chemical stability of frit and its resistance to attack by acids or alkali, this is anticipated to occur very slowly. To date there is no significant evidence of adverse effects from industrial exposures. As with all dusty materials, inhalation may cause respiratory irritation, sneezing, coughing and runny nose.

ACUTE SKIN CONTACT.....: Due to the abrasiveness of this product, mechanical irritation of the skin can occur, particularly if exposure is prolonged or repeated. Good personal hygiene and the use of protective creams will minimize this effect. Metal oxides in this product can cause skin irritation with symptoms such as redness and swelling.

ACUTE EYE CONTACT.....: Due to the abrasiveness of this product, mechanical irritation of the eyes can occur, particularly if exposure is prolonged or repeated. Metal oxides in this product can cause eye irritation with symptoms such as redness, swelling, tearing and pain.

ACUTE INGESTION.....: The hazardous ingredients listed for this product are incorporated into the glass structure of the frit, chemically reacted in the form of silicates or other essentially insoluble complexes. Exposure to the hazardous ingredients can occur if frit is ingested and the ingredients dissolve out of the glass. Because of the chemical stability of frit and its resistance to attack by acids or alkali, this is anticipated to occur very slowly. Metal oxides can cause mucous membrane irritation, with symptoms such as redness and swelling. To date there is

3. HAZARDS IDENTIFICATION (Continued)

no significant evidence of adverse effects from industrial exposure.
CHRONIC EFFECTS OF EXPOSURE...: Prolonged inhalation of amorphous silica may produce x-ray changes in the lungs without disability.

CARCINOGENICITY.....: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye or skin conditions or impaired pulmonary function may be more susceptible to the effects of this product.

EXPOSURE LIMITS.....: Although no exposure limit, in general, has been established for this product, the ACGIH-TLV for Particulates Not Otherwise Classified (PNOC) of 10 mg/m³ TWA is recommended. However, exposure limits for individual ingredients also apply (see Section 2).

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician if irritation occurs.

FIRST AID FOR SKIN.....: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

FIRST AID FOR INGESTION.: If swallowed, call a physician.

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Not Applicable

AUTO-IGNITION TEMPERATURE.....: Not Established

EXTINGUISHING MEDIA.....: Water; Dry Chemical; Carbon Dioxide; Foam

SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Avoid dusting.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Utilize recommended protective clothing and equipment. Spills should be swept up and placed in containers. Spill area can be washed with water. Collect wash water for approved disposal. Keep

6. ACCIDENTAL RELEASE MEASURES (Continued)

from entering water or ground water.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE (MIN/MAX): Ambient/122 F (50 C)
SHELF LIFE.....: Unlimited in closed container.
SPECIAL SENSITIVITY.....: None known.
HANDLING/STORAGE PRECAUTIONS: Avoid breathing dust. Avoid getting in eyes or on skin. Wash thoroughly after handling. Store in a dry place away from excessive heat. Avoid contact with moisture. Reseal containers immediately after use. Store away from food and beverages.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles are recommended.
SKIN PROTECTION REQUIREMENTS.....: Chemically resistant gloves and clothing are recommended to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.
VENTILATION REQUIREMENTS.....: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.
RESPIRATOR REQUIREMENTS.....: Work ambient concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved dust respirator should be worn.
ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Powder; Flakes; Granules
COLOR.....: Variable
ODOR.....: Odorless
pH.....: Not Applicable
BOILING POINT.....: Not Applicable
MELTING/FREEZING POINT.....: Greater than 1500 F (815 C)
SOLUBILITY IN WATER.....: Essentially Insoluble
SPECIFIC GRAVITY.....: 2 to 3
BULK DENSITY.....: Not Established
% VOLATILE BY VOLUME.....: Not Applicable
VAPOR PRESSURE.....: Not Applicable

Product Code: ON66
Approval date: 10/01/97

MSDS Page 4
Continued on next page

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: None Known
INSTABILITY CONDITIONS.....: None Known
DECOMPOSITION TEMPERATURE...: Not Established
DECOMPOSITION PRODUCTS.....: Combustion gases and process gases formed during
the firing up of enameled or glazed parts may contain potentially toxic
fumes.

11. TOXICOLOGICAL INFORMATION:

NO ANIMAL TOXICITY INFORMATION AVAILABLE

12. ECOLOGICAL INFORMATION:

NO ECOLOGICAL INFORMATION AVAILABLE

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Waste disposal should be in accordance with
existing federal, state and local environmental regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Frit
FREIGHT CLASS BULK.....: Frit (Glazing Compound)
FREIGHT CLASS PACKAGE.....: Frit (Glazing Compound)
PRODUCT LABEL.....: General Purpose Label #99

DOT (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: None
HAZARD CLASS OR DIVISION: Non-Regulated

Product Code: ON66
Approval date: 10/01/97

MSDS Page 5
Continued on next page

14. TRANSPORTATION INFORMATION (Continued)

DOT (continued)

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: None
 HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: None
 HAZARD CLASS DIVISION NUMBER...: Non-Regulated

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS.....: On TSCA Inventory

CERCLA REPORTABLE QUANTITY...: None.

SARA TITLE III:

SECTION 302 EXTREMELY
 HAZARDOUS SUBSTANCES...: None.

SECTION 311/312

HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard

SECTION 313

TOXIC CHEMICALS.....: Barium Compounds, < 30 % (< 30 % Total Ba).

RCRA STATUS.....: Although this product has not been tested, it would be expected to exhibit the characteristic of toxicity under RCRA. When discarded in its purchased form, this product should be managed as a RCRA hazardous waste. (40 CFR 261.20-24) - contains Barium.

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME
/CAS NUMBER

CONCENTRATION

STATE CODE

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Sodium Oxide 1313-59-3	Proprietary %	PA3
Aluminum Oxide 1344-28-1	< 6 %	PA1, MA, NJ1
Barium Oxide (Insoluble) 1304-28-5	< 30 %	PA1, NJ1

Product Code: ON66
 Approval date: 10/01/97

MSDS Page 6
 Continued on next page

15. REGULATORY INFORMATION (Continued)

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Boron Oxide 1303-86-2	Proprietary %	PA1, MA, NJ1
Silicon Dioxide (Amorphous) 7631-86-9	Proprietary %	PA1, MA, NJ1

MA = Massachusetts Hazardous Substance List
NJ1 = New Jersey Hazardous Substance List
PA1 = Pennsylvania Hazardous Substance List
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

16. OTHER INFORMATION:

REASON FOR ISSUE.....: Product line purchased by PEMCO HOLDING CORP.
Reissue signifies new owner approval of current MSDS.
APPROVAL DATE.....: 10/01/97
SUPERSEDES DATE.....: 08/19/96
MSDS NUMBER.....: 08270

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Product Code: ON66
Approval date: 10/01/97

MSDS Page 7
Last page