

# Mobay



A Bayer USA INC COMPANY

## MATERIAL SAFETY DATA SHEET

MOBAY CORPORATION  
INORGANIC CHEMICALS DIVISION  
Mobay Road  
Pittsburgh, PA 15205-9741

NOV 03 1992

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

NON-TRANSPORTATION  
MOBAY EMERGENCY PHONE...: (412) 923-1800  
MOBAY INFORMATION PHONE.: (800) 662-2927

### I. 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

### II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
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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 :	15.000 mg/m3	*TWA-Total Dust
		5.000 mg/m3	*TWA-Respirable Dust
	ACGIH:	10.000 mg/m3	*TWA

\* Aluminum (as Al)

Boron Oxide			
1303-86-2	OSHA :	10.000 mg/m3	TWA-Total Dust
		5.000 mg/m3	TWA-Respirable Dust
	ACGIH:	10.000 mg/m3	TWA

Silicon Dioxide (Amorphous)			
7631-86-9	OSHA :	6.000 mg/m3	TWA
	ACGIH:	10.000 mg/m3	TWA-Total Dust

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III. PHYSICAL PROPERTIES:  
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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

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IV. FIRE AND EXPLOSION DATA:  
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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.

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V. HUMAN HEALTH DATA:  
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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 frit 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. As with all dusty materials, inhalation  
may cause respiratory irritation, sneezing, coughing and runny nose. To  
date there is no significant evidence of adverse effects from industrial  
exposures.

ACUTE SKIN CONTACT.....: Due to the abrasiveness of this powdered frit  
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.

V. HUMAN HEALTH DATA (Continued)

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ACUTE EYE CONTACT.....: Certain components are listed as hazardous ingredients because they are considered to be nuisance particulates. Nuisance particulates can cause unpleasant or uncomfortable deposits in the eyes, with symptoms of reddening and swelling, but do not cause any toxic effect or disease.

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 dust 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 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 has been established for this product, the OSHA-PEL for nuisance dust of 15 mg/m<sup>3</sup>-total dust, 5 mg/m<sup>3</sup>-respirable dust is recommended. In addition, the ACGIH-TLV for fibrous glass dust of 10 mg/m<sup>3</sup> is recommended.

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VI. EMERGENCY AND FIRST AID PROCEDURES:

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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.

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VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

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EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles.

SKIN PROTECTION REQUIREMENTS.....: Chemically resistant gloves and clothing

VII. EMPLOYEE PROTECTION (Continued)

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are recommended to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.

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.

VENTILATION REQUIREMENTS.....: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.

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.

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VIII. REACTIVITY DATA:

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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.

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IX. SPILL AND LEAK PROCEDURES:

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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 from entering water or ground water.

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

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X. SPECIAL PRECAUTIONS & STORAGE DATA:

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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.

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XI. SHIPPING INFORMATION:  
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D.O.T. SHIPPING NAME.....: None  
TECHNICAL SHIPPING NAME.....: Frit  
D.O.T. HAZARD CLASS.....: Non-Regulated  
U.N./N.A. NUMBER.....: None  
PRODUCT RQ (lbs.) .....: None  
D.O.T. LABEL.....: Non-regulated  
D.O.T. PLACARD.....: Non-regulated  
FREIGHT CLASS BULK.....: Frit (Glazing Compound)  
FREIGHT CLASS PACKAGE.....: Frit (Glazing Compound)  
PRODUCT LABEL .....: General Purpose Label #99

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XII. ANIMAL TOXICITY DATA:  
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NO ANIMAL TOXICITY INFORMATION AVAILABLE

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XIII. FEDERAL REGULATORY INFORMATION:  
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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.....: Aluminum Oxide, CAS# 1344-28-1, 6 %;  
Barium Compounds, 30.% (Total Ba).  
RCRA STATUS.....: When discarded in its purchased form, this  
product meets the criteria of EP toxicity, and  
should be managed as a hazardous waste. (40 CFR  
261.20-24) - contains Barium.

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XIV. OTHER REGULATORY INFORMATION:  
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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
Sodium Oxide 1313-59-3	Proprietary %	PA3
Aluminum Oxide 1344-28-1	6 %	PA1, NJ1, CN1
Barium Oxide (Insoluble) 1304-28-5	30 %	PA1, NJ1
Boron Oxide 1303-86-2	Proprietary %	PA1, MA, NJ1, CN1
Silicon Dioxide (Amorphous) 7631-86-9	Proprietary %	PA1, MA, NJ1, CN1

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.  
CN1 = Canada WHMIS Ingredient Disclosure List over 1%.

CALIFORNIA PROPOSITION 65

To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.

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XV. APPROVALS:  
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REASON FOR ISSUE.....: Individual MSDS for Series; Add SARA; Update onto Flow.  
PREPARED BY.....: D. P. Kelly  
APPROVED BY.....: D. R. Hackathorn  
APPROVAL DATE.....: 07/18/90  
SUPERSEDES DATE.....: 12/30/85  
MSDS NUMBER.....: 08270

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