MATERIAL SAFETY DATA SHEET

1. COMPANY AND PRODUCT IDENTIFICATION

DUNCAN ENTERPRISES
5673 East Shields Avenue
Fresno, CA 93727
559-291-4444
559-291-9444 (Fax)

EMERGENCY TELEPHONE NUMBERS

Health Emergency:	559-291-4444	7:00 am – 3:30 pm Pacific Standard Time
Spill and Off-Hour Health Emergencies:	800-424-9300	U.S. and Canada
	703-527-3887	Outside U.S. and Canada (Collect)

Product Name: **DUNCAN GLOSS GLAZES**
Product Type: Leaded Ceramic Glaze

2. COMPOSITION / INFORMATION ON INGREDIENTS

The ingredients in this formulation are a trade secret. All ingredients in the formula are non-hazardous, unless specified in Sections 3 and 15.

3. HAZARDS IDENTIFICATION

HMIS Hazard Ratings for Product

Health:	3*	0 = Minimal
Flammability:	0	1 = Slight
Reactivity:	0	2 = Moderate
Personal Protection:	F (if spraying)	3 = Serious
		4 = Severe
		* = Chronic Effects

Note: Per independent lab testing, GL612 and GL612D are considered dinnerware safe when fired to witness cone 06 or hotter.

Hazardous Components	**OSHA PEL**	**ACGIH TLV**	**CAS #**	**%**
Silica, Crystalline-Quartz	1.5 mg/m^3	1.0 mg/m^3	14808-60-7	Up to 8
Copper (II)Oxide*	----------	----------	1317-38-0	Up to 7 (as CuO)

*Present in GL 1609 and GL 1609D only

Frit is a fused silicate glass substance. The components of this glass product listed below are from the inventory of potentially hazardous substances referenced by FED/OSHA in 29 CFR 1910.1200.

Components	**OSHA PEL**	**ACGIH TLV**
Lead compounds, as Pb	0.05 mg/m^3	0.15 mg/m^3
Barium compounds, as Ba	0.5 mg/m^3	0.5 mg/m^3
Cadmium compounds, as Cd**	0.5 mg/m^3	0.05 mg/m^3
Fluorides, as F	2.5 mg/m^3	2.5 mg/m^3

** present in GL 614, 632, 637, 658, and 670

3. HAZARDS IDENTIFICATION (Continued)

Other Information
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 and then ground to produce powdered frit. The lead listed for this product is incorporated into the glass structure of the frit, chemically reacted in the form of silicates of other essentially insoluble complexes. Exposure to the hazardous ingredients can occur if spray mist is inhaled or glaze ingested and the ingredient dissolves 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. This product contains the following component(s) that require reporting under Section 313 of the Emergency Planning and Community Right-to-Know Act, also known as Title III of SARA (Superfund Amendments and Reauthorization Act), and 40 CFR Part 372:

COMPONENT	PERCENT PRESENT[(a)]
Lead compounds	Up to 28% (as PbO)
Barium compounds	Up to 5 % (as BaO)
Cadmium compounds	Up to 7% (as CdO)

(a) The percent reported is based on the theoretical composition of this frit. While existing in theory, the component(s) mentioned are only present as part of FRIT (CAS #65997-18-4*).

4. FIRST AID MEASURES

Eye Contact: Flush eyes with large amounts of water until irritation subsides. Consult a physician.
Skin Contact: Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.
Inhalation: Move subject to fresh air; if breathing is difficult give oxygen. Consult a physician.
Ingestion: If swallowed, consult a physician. Induce vomiting if prescribed under medical supervision. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Autoignition Temperature: Nonflammable
Flash Point: Not Applicable
Upper Explosive Limit (%): Not Applicable
Lower Explosive Limit (%): Not Applicable
Extinguisher Media: Product is nonflammable – Use extinguishing media appropriate for surrounding fire
Special Firefighting Procedures: Not Applicable
Fire & Explosion Hazards: Not Applicable
NFPA Flammability Hazard Class: 0 = Insignificant

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Uncontaminated material may be recovered and re-used. If contaminated scoop, vacuum, or wash into a receptacle for disposal.

7. HANDLING AND STORAGE

Handling: When product in use, do not eat, drink, or smoke. Wash hands immediately after use. Keep sealed. **Keep out of reach of children. Do not use this product if pregnant or contemplating pregnancy.**

Storage: Protect containers against physical damage; store in dry area away from feed and food products.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Respiratory Protection:	If spraying, do not inhale mist. Use respirator that is NIOSH approved for sprays and mists.
Ventilation:	Local exhaust ventilation recommended
Mechanical (General):	Recommended when spraying
Protective Gloves:	Not needed for foreseeable conditions of use
Eye Protection:	Wear safety glasses with side shields

8. EXPOSURE CONTROL AND PERSONAL PROTECTION (Continued)

Other Protective Clothing Or Equipment: None needed

Work/Hygienic Practices: Good hygiene practices should be followed. When product in use, do not eat, drink, or smoke. Wash hands immediately after use. Keep sealed. **Keep out of reach of children. Do not use this product if pregnant or contemplating pregnancy.**

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance / Physical Description:	Colored liquid. Odorless
pH:	7 - 10
Boiling Point:	212°F
Freezing Point:	32°F
Melting Point:	1800°F
Solubility in Water:	Insoluble
Specific Gravity (Water = 1):	1.5 – 1.8
Bulk Density:	12.5 – 15.0 lb / gal
Evaporation Rate (Water = 1):	1
Vapor Pressure:	17.5 mm Hg @ 20°C (68°F)
Autoignition Temperature:	Not Applicable
Flash Point:	Not Applicable
Oxidizing Properties:	Not Applicable

10. STABILITY AND REACTIVITY

Stability:	Stable
Incompatible Materials:	None known
NFPA Reactivity Hazard Class:	0 = Insignificant
Hazardous Decomposition Products:	Avoid fumes when firing
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None Known

11. TOXICOLOGICAL INFORMATION

Principal Routes of Absorption: Inhalation and ingestion

Effects of Overexposure: Of primary concern is chronic overexposure to lead and cadmium. Their initial warning properties are poor. Prolonged or repeated inhalation and/or ingestion of lead containing frit dust may result in lead poisoning, with symptoms of weight loss, stomach cramps, loss of coordination and joint and muscle pain. Lead can cause kidney damage and delayed effects involving the blood, gastrointestinal, nervous, and reproductive systems. Excessive exposure to lead dusts during pregnancy can result in neurological disorders in infants. For additional information consult OSHA lead standard 29 CFR 1910.1025.

Metal fumes and/or fluoride containing vapors from firing may cause lung inflammation and injury in terms of hours with symptoms of chest pains, chills, cough, headache, and diarrhea.

Prolonged contact with frit dust can be very irritating to the eyes and/or skin. High dust levels can be irritating to the respiratory tract.

With adequate ventilation, dust control, and good personal hygiene, symptoms of overexposure should not occur. Advise regular medical monitoring of employees by a physician competent in industrial health.

11. TOXICOLOGICAL INFORMATION (Continued)

Carcinogenicity: In IARC Supplement 7, inorganic lead compounds are given a 2B rating which indicates “sufficient evidence” for carcinogenicity to animals and “inadequate evidence” for carcinogenicity to humans.

NIOSH (Current Intelligence Bulletin 42, September 27, 1984) “recommends that cadmium and its compounds be considered as potential occupational carcinogens”. Cadmium compounds are listed in IARC as suspected carcinogens.

12. ECOLOGICAL INFORMATION

No Data Available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Follow Federal or State and Local regulations for disposal. Lead is listed in US-EPA CFR 40, Part 261.24. Testing of the waste may be required to determine status under the hazardous waste regulations.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Information

DOT Shipping Name: Consumer Commodity ORM-D Glazes or Stains
DOT Hazard Class: OA/OG 88690 Sub. 1

15. REGULATORY INFORMATION

This product contains lead and barium compounds, which require reporting under Section 313 of the Emergency Section of the Emergency Planning and Community Right-To-Know Act, also known as Title III of the SARA (Superfund Amendments and Reauthorization Act), and 40 CFR Part 372:

Products bearing the Caution Label are certified to be properly labeled in a program of toxicological evaluation by a nationally recognized toxicologist. The products are certified by the toxicologist to be labeled in accordance with the chronic hazard labeling standard ASTM D-4236.

California Proposition 65:
WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

16. OTHER INFORMATION

Table of Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
ASTM	American Society for Testing Materials
°C	Degrees Centigrade
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations
DOT	Department of Transportation
EPA	Environmental Protection Agency
°F	Degrees Fahrenheit
FDA	Food & Drug Administration
Hg	Mercury
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
LD	Lethal Dose
mg / kg	Milligram per kilogram
mm	Millimeter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
N / A	Not Applicable

16. OTHER INFORMATION (Continued)

Table of Abbreviations (Continued)

NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
ppm	Parts per million
SARA	Superfund Amendment and Reauthorization Act
STEL	Short-Term Exposure Limit
TSCA	Toxic Substances Control Act
TWA	Time - Weighted Average
U.N.	United Nations
WHMIS	Workplace Hazardous Materials Information System
>	Greater Than
<	Less Than

Creation Date: 07/87
Revision Date: 08/21/07
Technical Contact: Frank Peters
Senior R&D Chemist
Duncan Enterprises
5673 East Shields Avenue
Fresno, CA 93727
559-291-4444
559-291-9444 (Fax)

Disclaimer

The information given and the recommendations made herein apply to our product(s) alone and not combined with any other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guarantee of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.