

# MATERIAL SAFETY DATA SHEET

## SECTION I

Manufactures Name: Farbglashutte Reichenbach GmbH  
 Address: 3 Sohlander Strabe  
 02894 Reichenbach

Emergency Telephone Number: 0049 35828 72241  
 Information Telephone Number:

Suppliers Name: Olympic Color Rods  
 Address: 818 John Street  
 Seattle, WA 98109

Emergency Telephone Number: 1-800-445-7742  
 Information Telephone Number: 206-343-7336 - FAX - 206-343-2292  
 Emergency Contact: Phil O'Reilly

Date Prepared: June, 1999

Common Name: Color glass rods, frits

Chemical formula: Varies with composition and color

## SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<u>Chemical Name - Common Name</u>	<u>Maximum %</u>	<u>OSHA PEL</u>	<u>ACGIH TLV*</u>
Silica (SiO2) - as cristobolite	60	0.05 mg/mg/m3	0.05 mg/m3
Sodium Carbonate (Na2CO3)	20	-	-
Potash (K2CO3)	20	-	-
Lead Oxide (PbO2)	40	0.05 mg/m3	0.05 mg/m3
Barium Oxide (BaO2)	10	0.5 mg/m3	0.5 mg/m3
Zinc oxide (ZnO)	5	5 mg/m3	5 mg/m3
Aluminum oxide (Al2O3)	5	10 mg/m3	10 mg/m3
Fluoride (F)	5	2.5 mg/m3	2.5 mg/m3
Arsenous oxide (As2O3) - as arsenic	3	0.01 mg/m3	0.01 mg/m3 - A1
Nickel Oxide (NiO)	3	1.0 mg/m3	1.0 mg/m3
Iron oxide (Fe2O3)	5	5.0 mg/m3	5.0 mg/m3
Cobalt Oxide (CoO) - inorganic Co	1	0.05 mg/m3	0.02 mg/m3 - A3
Calcium oxide (CaO2)	1	2.0 mg/m3	2.0 mg/m3
Cadmium oxide (CdO)	1	0.005 mg/m3	0.002 mg/m3 - A2
Selenium (Se)	1	0.2 mg/m3	0.2 mg/m3

All metal oxides are bound as silicates in the glass and will not be released unless ground to fine powder or fumes from molten glass

\*A - 1 = A confirmed human carcinogen

\*A - 2 = A suspected human carcinogen

\*A - 3 = A Confirmed animal carcinogen with unknown relevance to humans

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point:	1650 - 2550 F	Specific Gravity:	3g/cm
Vapor pressure (mm hg)	-	Melting Point:	1650 F
Vapor density (Air = 1)	-	Evaporation rate:	N/A
Solubility in water:	Not soluble		
Appearance and color:	Solid rods/granules/powder - color varies - no odor		

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	N/A	LEL:	- N/A
Extinguishing Media:	Water, foam, CO2	UEL:	- N/A
Special Fire Fighting Procedures:	None		
Unusual Fire and Explosion Hazards:	None		

### SECTION V - REACTIVITY DATA

Stability:	Stable
Conditions to avoid:	None
Incompatibility:	None
Hazardous Decomposition Byproducts:	Metal oxide fume (As, Ba, Fe, Cd, Pb, Al, Se, Co) when molten
Hazardous Polymerization:	Will not occur

### SECTION VI - HEALTH HAZARD DATA

For cuts from handling bulk products apply first aid as needed. Seek medical attention as required.

For burns from molten product - seek medical attention as needed depending on severity of burn.

Avoid inhalation of dust and fumes from molten product.

#### Silica (SiO<sub>2</sub>)

Routes of Entry: Inhalation

Chronic exposure can cause silicosis, a restrictive pulmonary fibrosis disease

#### Calcium oxide (CaO<sub>2</sub>)

Routes of Exposure: Inhalation, ingestion

May be caustic to skin, conjunctiva, cornea and mucus membranes. May cause ulceration and inflammation of the respiratory passages. Bronchitis and pneumonia have been reported from inhalation of dust.

#### Lead Oxide (PbO<sub>2</sub>)

Routes of Entry: Inhalation, Ingestion

Acute exposure can cause lead encephalopathy seizures, coma and death

Chronic exposure may cause damage to male and female reproductive organs. Signs of exposure include loss of appetite, abdominal pain, headaches, nausea, joint pain, insomnia, fatigue. May also cause damage to central nervous system. May cause kidney damage without any symptomology. May disrupt blood forming system causing anemia.

First Aid: remove victim from source and seek medical attention from Physician immediately

### *Arsenous oxide (As<sub>2</sub>O<sub>3</sub>)*

Routes of Entry: Inhalation, Ingestion

This is considered to be human carcinogen by ACGIH (A 1) - but is not regulated by OSHA

Acute ingestion symptoms include constriction of throat, epigastric pain, vomiting and diarrhea. If severe exposure shock may develop due to fluid loss.

Chronic ingestion exposure symptoms include weight loss, nausea, loss of hair, diarrhea, peripheral neuritis

Acute inhalation symptoms include cough, chest pain, dyspnea, headache, giddiness and general weakness.

Chronic inhalation symptoms include weakness, loss of appetite, nausea, diarrhea, perforation of nasal septum, skin lesions, peripheral neuritis, motor paralysis

First Aid: remove victim from source and seek medical attention from Physician immediately

### *Cadmium Oxide (CdO)*

Cadmium is an OSHA/WISHA regulated cancer causing element. Causes lung cancer and kidney damage

Routes of Exposure: Inhalation, Ingestion.

Acute inhalation symptoms include slight irritation of upper respiratory tract, followed by cough, sweating, chills. Severe exposure may involve pulmonary irritation, pain in chest, dyspnea, weakness. May develop emphysema.

Chronic exposure symptoms may cause lung damage, increased risk of lung cancer and kidney damage.

First Aid: remove victim from source and seek medical attention from Physician immediately

### *Cobalt Oxide (CoO)*

This is confirmed animal carcinogen with unknown relevance to humans by ACGIH.

Is not regulated by OSHA as a carcinogen

Routes of Exposure: Inhalation, Ingestion.

Cobalt dust is irritating to eyes and skin. May cause allergic sensitivity dermatitis. Cross sensitization occurs between cobalt, nickel and chromium

Inhalation of dust may cause asthma like disease with cough and dyspnea. May progress to interstitial pneumonia with fibrosis.

Ingestion of cobalt causes vomiting, diarrhea, sensations of hotness.

First Aid: remove victim from source and seek medical attention from Physician immediately

### *Sodium Carbonate (Na<sub>2</sub>CO<sub>3</sub>)*

Routes of Exposure: Inhalation, Ingestion.

A skin and eye irritant and a poison by intraperitoneal route.

Potassium Carbonate ( $K_2CO_3$ )

Routes of Exposure: Inhalation, Ingestion.

A poison by ingestion, strong caustic will burn skin.

First aid: remove victim from source, if splashed in eyes flush with water for 15 minutes and seek medical attention. If spilled on skin wash area and seek medical attention. For ingestion seek medical attention immediately

Barium oxide ( $BaO_2$ )

Routes of Exposure: Inhalation, Ingestion.

Acute exposure may cause local eye, nose throat and skin irritation.

Ingestion of barium increases muscle contractility, slowed heart rate, vascular constriction, bladder contraction, increased muscle tension. Inhalation of dust may cause a benign pneumoconiosis

First aid: remove victim from source, if splashed in eyes flush with water for 15 minutes and seek medical attention. If spilled on skin wash area and seek medical attention. For ingestion seek medical attention immediately

Zinc Oxide ( $ZnO$ )

Routes of Exposure: Inhalation, Ingestion.

Handling of bulk powders may produce dermatitis.

Acute exposure to fumes may produce "metal fume fever", chills, fever, chest tightness, cough dyspnea, fatigue, joint pain

First Aid: Remove victim from source and provide fresh air. Metal fume fever will last 24 - 48 hours.

Aluminum Oxide ( $Al_2O_3$ )

Routes of Exposure: Inhalation, Ingestion.

Chronic exposure to dust may cause lung damage.

Fluoride (F)

Routes of Exposure: Inhalation, Ingestion, skin absorption

Acute exposure to fluorine dust, mists or fumes may cause irritation to the eyes, skin, mucous membranes and lungs

Chronic exposure to fume, mist, and dust may cause nosebleeds, pulmonary edema, bronchospasm.

Ingestion of fluorine may cause nausea, vomiting, abdominal cramps, and diarrhea. Large dose may cause convulsions and death.

First aid: remove victim from source, if splashed in eyes flush with water for 15 minutes and seek medical attention. If spilled on skin wash area and seek medical attention. For ingestion seek medical attention immediately

*Nickel Oxide (NiO)*

Routes of Exposure: Inhalation, Ingestion, skin absorption

Skin sensitization frequently occurs with exposure to nickel and nickel compounds resulting in eczema.

Suspected human carcinogen

Acute exposure may cause irritation of the conjunctive and mucous membrane of the upper respiratory tract.

First Aid: remove victim from source and seek medical attention from Physician immediately

*Iron Oxide (Fe<sub>2</sub>O<sub>3</sub>)*

Routes of Exposure: Inhalation, Ingestion.

Inhalation of iron fumes or dust may cause a benign pneumoconiosis.

*Selenium (Se)*

Routes of Exposure: Inhalation, Ingestion

Some compounds of selenium are strong irritants to upper respiratory tract and the eyes. Is capable of antagonizing toxic effects of other metals, such as As, and Cd.

Inhalation of fumes may cause irritation of the nose, eye, and upper respiratory tract, tightness in the chest. Severe exposure may cause pulmonary edema. May have garlic odor in breath, metallic taste in mouth, pallor, lassitude, giddiness, irritability.

First Aid: remove victim from source and seek medical attention from Physician immediately

**SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

Steps to be taken in case of spill:

Sweep up broken glass - vacuum area. In case of spill of powder should use HEPA vacuum, wet wash, wipe area.

Waste disposal method:

General refuse

Precautions to be taken in handling and storing:

product should be stored in stable location to avoid breakage.

Other precautions:

Molten product should be handled with due caution by trained individuals.

**SECTION VIII - CONTROL MEASURES**

Respiratory Protection: When grinding or handling powders working around molten products should use NIOSH approved respirator with P-100 filters

Ventilation: Local exhaust when grinding or working with molten product  
General ventilation recommended for temperature control with molten product

Protective gloves: As needed for cuts or burns as conditions warrant

Eye Protection: Recommended when grinding or working with molten product

Other protective equipment: Aprons or protective coveralls recommended when handling bulk powders

Work/Hygienic Practices: Wash hands and face after handling bulk products or powder before eating, smoking or drinking.