

## **SAFETY DATA SHEETS**

**This SDS packet was issued with item:**

077262793

**The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).**

077262256 077262678 077262686 077262694 077262702 077262710 077262728 077262736 077262744 077262751

077262769 077262777 077262785 077262801 077262819 077262827



**SAFETY DATA SHEET**

(Revision: 1/22/2015)

**1. Identification**

- Product Type: Phosphate Casting Investment
- Trade Names:
 

<b>AccuVest</b>	<b>Cera-Fina</b>	<b>Ceramigold</b>	<b>FastFire 15</b>
<b>Formula 1</b>	<b>Hi-Temp</b>	<b>PC 15</b>	<b>PowerCast</b>
<b>Polyvest</b>	<b>Ti21</b>	<b>V.H.T. Industrial</b>	<b>X-20</b>
- Company: **Whip Mix Corporation**  
**361 Farmington Ave.**  
**Louisville, Kentucky, USA 40209**  
**Emergency Telephone Number: (502)-637-1451**  
**Fax Number: (502) 634-4512**

**Transportation** *CHEMTREC 1(800) 424-9300 (U.S. and Canada)*  
**Emergencies:** *International Calls: 1- 703-527-3887 (Collect calls accepted)*

**2. Hazard Identification.**

**OSHA Hazcom 2014 Classification:**

Health Hazards	Physical Hazards
Specific Target Organ Toxicity – Repeat Exposure Category 1A Carcinogen Category 1A	Not Hazardous

**Labeling:**

Danger!



**Hazard Statements:**

May cause cancer if inhaled.  
 Causes damage to lung through prolonged or repeated exposure by inhalation.

**Precautionary Statements:**

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Do not breathe dust.  
 Wash thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Wear protective gloves and eye protection.  
 IF exposed or concerned: Get medical attention.  
 Get medical attention if you feel unwell.  
 Store locked up.  
 Dispose of contents and container in accordance with local and national regulations.

**3. Composition/Information on Ingredients.**

<u>Substance</u>	<u>CAS No.</u>	<u>%</u>
Silica, Crystalline, Quartz	14808-60-7	0-75
Silica, Crystalline, Cristobalite	14464-46-1	0-30
Zirconium Silicate	14940-68-2	0-95

Phosphates	Mixture	1-40
Aluminum Oxide	1344-28-1	0-5
Graphite	7782-42-5	0-5

#### 4. First-Aid Measures.

**Inhalation:** Remove exposed person to fresh air. If irritation or other symptoms persist, get medical attention.

**Eyes:** Flush with large quantities of water, holding the eyelids apart. If irritation persists consult a physician.

**Skin:** No first aid is generally required. Wash skin with soap and water.

**Ingestion:** May cause gastrointestinal discomfort and intestinal blockage. If swallowed, drink 1 or 2 glasses of water to dilute. Never give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

**Most important symptoms/effects, acute and delayed:** May cause eye irritation. Inhalation of dust may cause mucous membrane and respiratory irritation. When mixed with water, this material hardens and becomes very hot – may cause burns.

**Indication of Any Immediate Medical Attention and Special Treatment Needed:** Immediate medical attention is required for ingestions.

#### 5. Fire-Fighting Measures.

**Suitable (and unsuitable) Extinguishing Media:** Use media appropriate for surrounding fire. Water may cause product to solidify.

**Specific Hazards Arising From the Chemical:** The product does not burn but may decompose producing phosphorus oxides.

**Special Protective Equipment and Precautions for Fire-fighters:** Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus. Cool fire exposed containers with water.

#### 6. Accidental Release Measures.

**Personal Precautions, Protective Equipment and Emergency Procedures:** Wear appropriate protective clothing as described in Section 8.

**Environmental Hazards:** Report releases as required by local and national authorities.

**Methods and Materials for Containment and Cleaning up:** Collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. Do not use compressed air.

#### 7. Handling and Storage.

**Precautions for Safe Handling:** Avoid contact with eyes. Do not breathe dust. Wear protective clothing and equipment as described in Section 8. Use with adequate ventilation and proper dust collection methods to keep exposure level below occupational exposure limits. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

**Conditions for Safe Storage, including Any Incompatibilities:** Store in a cool, dry, well-ventilated area away from incompatible materials. Protect from physical damage

#### 8. Exposure Controls/Personal Protection.

##### Occupational Exposure Limits:

Silica, Crystalline, Quartz	$10 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
	% Silica + 2	
	$30 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
Silica, Crystalline, Cristobalite	% Silica + 2	
	$0.025 \text{ mg/m}^3$	TWA TLV (respirable fraction)
	$10 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
Zirconium Silicate	2 (% Silica + 2)	
	$30 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
	2 (% Silica + 2)	
Phosphates	$0.025 \text{ mg/m}^3$	TWA TLV (respirable fraction)
	$5 \text{ mg/m}^3$	TWA OSHA PEL
Aluminum Oxide	$5 \text{ mg/m}^3$	TWA, 10 STEL ACGIH TLV
	$5 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
Graphite	$15 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
	$15 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
Graphite	15 mppcf	TWA OSHA PEL
	$2 \text{ mg/m}^3$	TWA ACGIH TLV (respirable)

**Appropriate engineering controls:** Use with adequate local exhaust ventilation to maintain exposures below the

occupational exposure limits.

**Respiratory protection:** If the exposure limits are exceeded a NIOSH approved particulate respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 or other applicable regulations and good industrial hygiene practice.

**Skin protection:** For prolonged use or in dusty conditions, wear rubber gloves.

**Eye protection:** Chemical safety goggles if needed to avoid eye contact.

**Other:** Impervious clothing as needed to avoid contamination of personal clothing.

## 9. Physical and Chemical Properties.

**Appearance:** Powder, with variety of colors

**Odor:** Odorless.

**Odor threshold:** Not applicable

**Melting point/freezing point:** Not applicable

**Flash point:** Not applicable

**Flammability (solid, gas):** Not applicable

**Flammable limits: LEL:** Not applicable

**Vapor pressure:** Not applicable

**Relative density:** Not applicable

**Partition coefficient: n-octanol/water:** Not available

**Decomposition temperature:** Not available

**pH:** Not applicable

**Boiling point:** Not applicable

**Evaporation rate:** Not applicable

**UEL:** Not applicable

**Vapor density (air = 1):** Not applicable

**Solubility In Water:** Not applicable

**Auto-ignition temperature:** Not applicable

**Viscosity:** Not applicable

## 10. Stability and Reactivity.

**Reactivity:** None known.

**Chemical stability:** Stable

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** None known.

**Incompatible materials:** Incompatible with hydrofluoric acid.

**Hazardous decomposition products:** Crystalline silica will dissolve in hydrofluoric acid and produce silicone tetrafluoride.

## 11. Toxicological Information.

**Eyes:** Dust may cause mechanical irritation and possible injury.

**Skin:** Dust may cause irritation.

**Ingestion:** No adverse effects expected for normal, incidental ingestion. Large amounts may cause gastrointestinal blockage and discomfort.

**Inhalation:** Inhalation of dust may cause irritation to the nose, throat and upper respiratory tract with coughing and shortness of breath.

**Chronic Health Effects:** Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function.

**Carcinogenicity:** Crystalline silica quartz is listed as "Carcinogenic to Humans" (Group 1) by IARC and "Known to be a Human Carcinogen" by NTP. None of the other components of this product are listed as carcinogens by OSHA, IARC or NTP.

### Acute Toxicity Data:

Silica, Crystalline, Quartz: Oral rat LD50 >22,500 mg/kg

Silica, Crystalline, Cristobalite: No toxicity data available

Zirconium Silicate: No toxicity data available

Aluminum Oxide: Oral rat LD50 15900 mg/kg, Inhalation rat LC50 7.6 mg/L/1 hr

Graphite: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 >2000 mg/m3 (no deaths occurred)

Phosphates: No toxicity data available

## 12. Ecological Data.

### Ecotoxicity:

Silica, Crystalline, Quartz: 72 hr LC50 Carp - >10,000 mg/L

Silica, Crystalline, Cristobalite: No data available

Zirconium Silicate: No data available

Aluminum Oxide: 96 hr LC50 Pimephales promelas 35 mg/L

Graphite: 96 hr EC50 Danio rerio >100 mg/L, 48 hr EC50 daphnia magna >100 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >100 mg/L

Phosphates: No data available

**Persistence and degradability:** Biodegradation is not applicable to inorganic substances.

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Other adverse effects:** Not required.

**13. Disposal Considerations.**

Dispose in accordance with all national and local regulations.

**14. Transport Information.**

US DOT: Not Regulated

Canada TDG: Not Regulated

IMDG: Not Regulated

IATA/ICAO: Not Regulated

**Special precautions:** Not applicable

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable – product is transported only in packaged form

**15. Regulatory Information.**

**Safety, health, and environmental regulations specific for the product in question**

**US Regulations**

**SARA Section 313 (40 CFR 372):** This product contains the following toxic chemical(s) subject to reporting requirements of SARA 313: None

**SARA Section 311/312 (40 CFR 370) Hazard Categories:** Chronic Health

**Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):** This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

**Toxic Substances Control Act (TSCA):** All of the components of this product are listed on the TSCA inventory

**California:** This product contains the following substances known to the state of California to cause cancer and/or reproductive toxicity:

Silica, Crystalline, Quartz	14808-60-7	0-80%	Cancer
Titanium Dioxide	13463-67-7	<0.1%	Cancer
Uranium (as radionuclides)	7440-61-1	<300 ppm	Cancer
Thorium as radionuclides)	7440-29-1	<160 ppm	Cancer

**International Regulations**

**Canadian Workplace Hazardous Materials Information System (WHMIS):** Class D Division 2A (Very Toxic material causing other toxic effects)

**Canadian Environmental Protection Act:** Not determined

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

**16. Other Information.**

•HMIS Rating: Health 1\* Flammability 0 Reactivity 0 Other 0

*Hazard: 4-Severe; 3-Serious; 2-Moderate; 1-Slight; 0-Minimum*

Prepared By:

*Denise A. Deeds*

Date: 1/22/15

Translated By:

Date:



## SAFETY DATA SHEET

(Revision: 01/10/2015)

### 1. Identification

- Product Type: Phosphate Investment Casting Liquid
- Trade Names: **Ceramigold Lilac Liquid**  
**PowerPlus Liquid**  
**Special Liquid Concentrate Max**  
**Formula 1 Liquid**  
**Polyvest Liquid**

**FastFire Liquid**  
**Old Style Special Liquid**  
**Special Liquid Concentrate**  
**Special Liquid Concentrate Plus**  
**Ti21 Liquid**

- Company: **Whip Mix Corporation**  
**361 Farmington Ave.**  
**Louisville, Kentucky, USA 40209**  
**Emergency Telephone Number: (502)-637-1451**  
**Fax Number: (502) 634-4512**

**Transportation** *CHEMTREC 1(800) 424-9300 (U.S. and Canada)*  
**Emergencies:** *International Calls: 1- 703-527-3887 (Collect calls accepted)*

### 2. Hazard Identification.

**OSHA Hazcom 2014 Classification:** Not hazardous

**Labeling:** None required

### 3. Composition/Information on Ingredients.

<u>Substance</u>	<u>CAS No.</u>	<u>%</u>
Amorphous Silica	7631-86-9	20-60%

The exact concentration is being withheld as a trade secret.

### 4. First-Aid Measures.

**Inhalation:** Remove exposed person to fresh air. If irritation or other symptoms persist, get medical attention.

**Eyes:** Flush with large quantities of water, holding the eyelids apart. If irritation persists consult a physician.

**Skin:** No first aid is generally required. Wash skin with soap and water.

**Ingestion:** If swallowed, rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Get medical attention.

**Most important symptoms/effects, acute and delayed:** May cause mild eye irritation. Inhalation of mists may cause mucous membrane and upper respiratory tract irritation. Ingestion may cause gastrointestinal irritation and nausea.

**Indication of Any Immediate Medical Attention and Special Treatment Needed:** No immediate medical attention is required.

### 5. Fire-Fighting Measures.

**Suitable (and unsuitable) Extinguishing Media:** Use media appropriate for surrounding fire.

**Specific Hazards Arising From the Chemical:** The product is not flammable or combustible.

**Special Protective Equipment and Precautions for Fire-fighters:** Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus. Cool fire exposed containers with water.

### 6. Accidental Release Measures.

**Personal Precautions, Protective Equipment and Emergency Procedures:** Wear appropriate protective clothing as described in Section 8. Wash hands after use. Avoid breathing vapors or mists.

**Environmental Hazards:** Report releases as required by local and national authorities.

**Methods and Materials for Containment and Cleaning up:** Collect with an inert material and place in appropriate container for disposal or reuse.

## 7. Handling and Storage.

**Precautions for Safe Handling:** Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Wear protective clothing as described in Section 8. Wash with soap and water after handling. Keep containers closed when not in use.

**Conditions for Safe Storage, including Any Incompatibilities:** Store in a cool, dry, well-ventilated area away from incompatible materials. Protect from physical damage.

## 8. Exposure Controls/Personal Protection.

### Occupational Exposure Limits:

Amorphous Silica	80 mg/m <sup>3</sup> %SiO <sub>2</sub>
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**Appropriate engineering controls:** Use adequate general or local exhaust ventilation to minimize exposures levels.

**Respiratory protection:** If the exposure limits are exceeded a NIOSH approved particulate respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 or other applicable regulations and good industrial hygiene practice.

**Skin protection:** For prolonged use, wear rubber gloves.

**Eye protection:** Chemical safety goggles if needed to avoid eye contact.

**Other:** Impervious clothing as needed to avoid contamination of personal clothing.

## 9. Physical and Chemical Properties.

**Appearance:** Translucent or colored liquid

**Odor:** Odorless.

**Odor threshold:** Not available

**Melting point/freezing point:** 32°F / 0°C

**Flash point:** None

**Flammability (solid, gas):** Not applicable

**Flammable limits: LEL:** Not applicable

**Vapor pressure:** Same as water

**Relative density:** 1.24-1.25 @ 77°F

**Partition coefficient: n-octanol/water:** Not applicable

**Decomposition temperature:** Not available

**pH:** 8.4-8.8

**Boiling point:** 212°F / 100°C

**Evaporation rate:** Same as water

**UEL:** Not applicable

**Vapor density (air = 1):** Same as water

**Solubility In Water:** Dispersible

**Auto-ignition temperature:** Not available

**Viscosity:** Max 6.0 cps @ 77°F

## 10. Stability and Reactivity.

**Reactivity:** None known.

**Chemical stability:** Stable

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** None known.

**Incompatible materials:** Avoid oxidizing agents.

**Hazardous decomposition products:** Thermal decomposition may generate sulfur

## 11. Toxicological Information.

**Eyes:** May cause mild irritation with redness and tearing.

**Skin:** Prolonged skin contact may cause irritation with redness and drying of the skin.

**Ingestion:** Swallowing may cause gastrointestinal irritation and nausea.

**Inhalation:** Inhalation of mists may cause irritation to the nose, throat and upper respiratory tract.

**Chronic Health Effects:** None known.

**Carcinogenicity:** None of the components of this product are listed as carcinogens by OSHA, IARC or NTP.

### Acute Toxicity Data:

Amorphous Silica: Oral rat LD50 >5000 mg/kg, Inhalation rat LC0 >0.39 mg/L/4 hr, LD50, Dermal rabbit LD50 >2000 mg/kg

## 12. Ecological Data.

**Ecotoxicity:**

Amorphous Silica: 96 hr LC50 Danio rerio >10,000 mg/L, 24 hr EC50 daphnia magna >1000 mg/L, 72 hr EC50 Desmodemus subspicatus >10000 mg/L

**Persistence and degradability:** Biodegradation is not applicable to inorganic substances such as amorphous silica.

**Bioaccumulative potential:** The product is not expected to bioaccumulate.

**Mobility in soil:** No data available

**Other adverse effects:** Not required.

### 13. Disposal Considerations.

Dispose in accordance with all national and local regulations.

### 14. Transport Information.

US DOT: Not Regulated

Canada TDG: Not Regulated

IMDG: Not Regulated

IATA/ICAO: Not Regulated

**Special precautions:** Not applicable

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable – product is transported only in packaged form.

### 15. Regulatory Information.

#### Safety, health, and environmental regulations specific for the product in question

#### US Regulations

**SARA Section 313 (40 CFR 372):** This product contains the following toxic chemical(s) subject to reporting requirements of SARA 313: None

**SARA Section 311/312 (40 CFR 370) Hazard Categories:** Not hazardous

**Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):** This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

**Toxic Substances Control Act (TSCA):** All of the components of this product are listed on the TSCA inventory

**California:** This product contains the following substances known to the state of California to cause cancer and/or reproductive toxicity: None

#### International Regulations

**Canadian Workplace Hazardous Materials Information System (WHMIS):** Not a controlled product.

**Canadian Environmental Protection Act:** None at this time.

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

### 16. Other Information.

- HMIS Rating: Health 1 Flammability 0 Reactivity 2 Other 0  
Hazard: 4-Severe; 3-Serious; 2-Moderate; 1-Slight; 0-Minimum

Prepared By:

*Denise A. Deeds*

Translated By:

Date: 1/10/2015

Date:





# SAFETY DATA SHEET

(Revision: 1/22/2015)

## 1. Identification

- Product Type: Phosphate Casting Investment
- Trade Names:
 

<b>AccuVest</b>	<b>Cera-Fina</b>	<b>Ceramigold</b>	<b>FastFire 15</b>
<b>Formula 1</b>	<b>Hi-Temp</b>	<b>PC 15</b>	<b>PowerCast</b>
<b>Polyvest</b>	<b>Ti21</b>	<b>V.H.T. Industrial</b>	<b>X-20</b>
- Company: **Whip Mix Corporation**  
**361 Farmington Ave.**  
**Louisville, Kentucky, USA 40209**  
**Emergency Telephone Number: (502)-637-1451**  
**Fax Number: (502) 634-4512**

**Transportation** *CHEMTREC 1(800) 424-9300 (U.S. and Canada)*  
**Emergencies:** *International Calls: 1- 703-527-3887 (Collect calls accepted)*

## 2. Hazard Identification.

**OSHA Hazcom 2014 Classification:**

Health Hazards	Physical Hazards
Specific Target Organ Toxicity – Repeat Exposure Category 1A Carcinogen Category 1A	Not Hazardous

### Labeling:

Danger!



### Hazard Statements:

May cause cancer if inhaled.  
 Causes damage to lung through prolonged or repeated exposure by inhalation.

### Precautionary Statements:

Obtain special instructions before use.  
 Do not handle until all safety precautions have been read and understood.  
 Do not breathe dust.  
 Wash thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Wear protective gloves and eye protection.  
 IF exposed or concerned: Get medical attention.  
 Get medical attention if you feel unwell.  
 Store locked up.  
 Dispose of contents and container in accordance with local and national regulations.

## 3. Composition/Information on Ingredients.

<u>Substance</u>	<u>CAS No.</u>	<u>%</u>
Silica, Crystalline, Quartz	14808-60-7	0-75
Silica, Crystalline, Cristobalite	14464-46-1	0-30
Zirconium Silicate	14940-68-2	0-95

Phosphates	Mixture	1-40
Aluminum Oxide	1344-28-1	0-5
Graphite	7782-42-5	0-5

#### 4. First-Aid Measures.

**Inhalation:** Remove exposed person to fresh air. If irritation or other symptoms persist, get medical attention.

**Eyes:** Flush with large quantities of water, holding the eyelids apart. If irritation persists consult a physician.

**Skin:** No first aid is generally required. Wash skin with soap and water.

**Ingestion:** May cause gastrointestinal discomfort and intestinal blockage. If swallowed, drink 1 or 2 glasses of water to dilute. Never give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

**Most important symptoms/effects, acute and delayed:** May cause eye irritation. Inhalation of dust may cause mucous membrane and respiratory irritation. When mixed with water, this material hardens and becomes very hot – may cause burns.

**Indication of Any Immediate Medical Attention and Special Treatment Needed:** Immediate medical attention is required for ingestions.

#### 5. Fire-Fighting Measures.

**Suitable (and unsuitable) Extinguishing Media:** Use media appropriate for surrounding fire. Water may cause product to solidify.

**Specific Hazards Arising From the Chemical:** The product does not burn but may decompose producing phosphorus oxides.

**Special Protective Equipment and Precautions for Fire-fighters:** Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus. Cool fire exposed containers with water.

#### 6. Accidental Release Measures.

**Personal Precautions, Protective Equipment and Emergency Procedures:** Wear appropriate protective clothing as described in Section 8.

**Environmental Hazards:** Report releases as required by local and national authorities.

**Methods and Materials for Containment and Cleaning up:** Collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. Do not use compressed air.

#### 7. Handling and Storage.

**Precautions for Safe Handling:** Avoid contact with eyes. Do not breathe dust. Wear protective clothing and equipment as described in Section 8. Use with adequate ventilation and proper dust collection methods to keep exposure level below occupational exposure limits. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

**Conditions for Safe Storage, including Any Incompatibilities:** Store in a cool, dry, well-ventilated area away from incompatible materials. Protect from physical damage

#### 8. Exposure Controls/Personal Protection.

##### Occupational Exposure Limits:

Silica, Crystalline, Quartz	$10 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
	% Silica + 2	
	$30 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
Silica, Crystalline, Cristobalite	% Silica + 2	
	$0.025 \text{ mg/m}^3$	TWA TLV (respirable fraction)
	$10 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
Zirconium Silicate	2 (% Silica + 2)	
	$30 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
	2 (% Silica + 2)	
Phosphates	$0.025 \text{ mg/m}^3$	TWA TLV (respirable fraction)
	$5 \text{ mg/m}^3$	TWA OSHA PEL
Aluminum Oxide	$5 \text{ mg/m}^3$	TWA, 10 STEL ACGIH TLV
	$5 \text{ mg/m}^3$	TWA OSHA PEL (respirable fraction)
Graphite	$15 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
	$15 \text{ mg/m}^3$	TWA OSHA PEL (total dust)
Graphite	15 mppcf	TWA OSHA PEL
	$2 \text{ mg/m}^3$	TWA ACGIH TLV (respirable)

**Appropriate engineering controls:** Use with adequate local exhaust ventilation to maintain exposures below the

occupational exposure limits.

**Respiratory protection:** If the exposure limits are exceeded a NIOSH approved particulate respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 or other applicable regulations and good industrial hygiene practice.

**Skin protection:** For prolonged use or in dusty conditions, wear rubber gloves.

**Eye protection:** Chemical safety goggles if needed to avoid eye contact.

**Other:** Impervious clothing as needed to avoid contamination of personal clothing.

## 9. Physical and Chemical Properties.

**Appearance:** Powder, with variety of colors

**Odor:** Odorless.

**Odor threshold:** Not applicable

**Melting point/freezing point:** Not applicable

**Flash point:** Not applicable

**Flammability (solid, gas):** Not applicable

**Flammable limits: LEL:** Not applicable

**Vapor pressure:** Not applicable

**Relative density:** Not applicable

**Partition coefficient: n-octanol/water:** Not available

**Decomposition temperature:** Not available

**pH:** Not applicable

**Boiling point:** Not applicable

**Evaporation rate:** Not applicable

**UEL:** Not applicable

**Vapor density (air = 1):** Not applicable

**Solubility In Water:** Not applicable

**Auto-ignition temperature:** Not applicable

**Viscosity:** Not applicable

## 10. Stability and Reactivity.

**Reactivity:** None known.

**Chemical stability:** Stable

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** None known.

**Incompatible materials:** Incompatible with hydrofluoric acid.

**Hazardous decomposition products:** Crystalline silica will dissolve in hydrofluoric acid and produce silicone tetrafluoride.

## 11. Toxicological Information.

**Eyes:** Dust may cause mechanical irritation and possible injury.

**Skin:** Dust may cause irritation.

**Ingestion:** No adverse effects expected for normal, incidental ingestion. Large amounts may cause gastrointestinal blockage and discomfort.

**Inhalation:** Inhalation of dust may cause irritation to the nose, throat and upper respiratory tract with coughing and shortness of breath.

**Chronic Health Effects:** Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function.

**Carcinogenicity:** Crystalline silica quartz is listed as "Carcinogenic to Humans" (Group 1) by IARC and "Known to be a Human Carcinogen" by NTP. None of the other components of this product are listed as carcinogens by OSHA, IARC or NTP.

### Acute Toxicity Data:

Silica, Crystalline, Quartz: Oral rat LD50 >22,500 mg/kg

Silica, Crystalline, Cristobalite: No toxicity data available

Zirconium Silicate: No toxicity data available

Aluminum Oxide: Oral rat LD50 15900 mg/kg, Inhalation rat LC50 7.6 mg/L/1 hr

Graphite: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 >2000 mg/m<sup>3</sup> (no deaths occurred)

Phosphates: No toxicity data available

## 12. Ecological Data.

### Ecotoxicity:

Silica, Crystalline, Quartz: 72 hr LC50 Carp - >10,000 mg/L

Silica, Crystalline, Cristobalite: No data available

Zirconium Silicate: No data available

Aluminum Oxide: 96 hr LC50 Pimephales promelas 35 mg/L

Graphite: 96 hr EC50 Danio rerio >100 mg/L, 48 hr EC50 daphnia magna >100 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata >100 mg/L

Phosphates: No data available

**Persistence and degradability:** Biodegradation is not applicable to inorganic substances.

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Other adverse effects:** Not required.

**13. Disposal Considerations.**

Dispose in accordance with all national and local regulations.

**14. Transport Information.**

US DOT: Not Regulated

Canada TDG: Not Regulated

IMDG: Not Regulated

IATA/ICAO: Not Regulated

**Special precautions:** Not applicable

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable – product is transported only in packaged form

**15. Regulatory Information.**

**Safety, health, and environmental regulations specific for the product in question**

**US Regulations**

**SARA Section 313 (40 CFR 372):** This product contains the following toxic chemical(s) subject to reporting requirements of SARA 313: None

**SARA Section 311/312 (40 CFR 370) Hazard Categories:** Chronic Health

**Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):** This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

**Toxic Substances Control Act (TSCA):** All of the components of this product are listed on the TSCA inventory

**California:** This product contains the following substances known to the state of California to cause cancer and/or reproductive toxicity:

Silica, Crystalline, Quartz	14808-60-7	0-80%	Cancer
Titanium Dioxide	13463-67-7	<0.1%	Cancer
Uranium (as radionuclides)	7440-61-1	<300 ppm	Cancer
Thorium as radionuclides)	7440-29-1	<160 ppm	Cancer

**International Regulations**

**Canadian Workplace Hazardous Materials Information System (WHMIS):** Class D Division 2A (Very Toxic material causing other toxic effects)

**Canadian Environmental Protection Act:** Not determined

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

**16. Other Information.**

•HMIS Rating: Health 1\* Flammability 0 Reactivity 0 Other 0

*Hazard: 4-Severe; 3-Serious; 2-Moderate; 1-Slight; 0-Minimum*

Prepared By:

*Denise A. Deeds*

Date: 1/22/15

Translated By:

Date: