



## Safety Data Sheet

**Material Name: Emisshield® Ceramic/Refractory ST-25 (Patent No. 6,921,431 and other Patents Pending)**

**SDS ID: emisshield-03**

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### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

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**Material Name**

Emisshield® Ceramic/Refractory ST-25 (Patent No. 6,921,431 and other Patents Pending)

**Product Use**

High emissivity liquid coating material for use with ceramics and refractory materials

**Restrictions on Use**

None known

**Manufacturer Information**

Emisshield  
2000 Kraft Drive, Suite 2600  
Blacksburg, VA 24060

Phone: 540-961-0999

Emergency Phone #: 540-633-6761

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### Section 2 - HAZARDS IDENTIFICATION

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**Classification in accordance with paragraph (d) of 29 CFR 1910.1200.**

Acute Toxicity - Oral - Category 4 (5% unknown)

Carcinogenicity - Category 1A

Specific Target Organ Toxicity - Single Exposure - Category 1 ( respiratory system )

Specific Target Organ Toxicity - Repeated Exposure - Category 1 ( kidneys,respiratory system,lungs )

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Danger

**Hazard Statement(s)**

Harmful if swallowed

May cause cancer

Causes damage to organs

Causes damage to organs through prolonged or repeated exposure



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### Precautionary Statement(s)

#### Prevention

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Wear protective gloves/protective clothing/eye protection/face protection  
Do not breathe dust/fume/gas/mist/vapours/spray  
Wash thoroughly after handling  
Do not eat, drink or smoke when using this product

#### Response

IF exposed or concerned: Get medical advice/attention  
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell  
Rinse mouth  
Get medical advice/attention if you feel unwell  
Specific treatment (see label)

#### Storage

Store locked up

#### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations

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### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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CAS	Component Name	Percent
14808-60-7	Quartz	35-50
7631-86-9	Silica, amorphous	10-25

#### Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: silica, crystalline.

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### Section 4 - FIRST AID MEASURES

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#### Description of Necessary Measures

IF exposed or concerned: Get medical advice/attention.

#### Inhalation

If adverse effects occur, remove to uncontaminated area. Call a POISON CENTER or doctor/physician if you feel unwell.

#### Skin

Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.



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### **Eyes**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

### **Ingestion**

Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

### **Most Important Symptoms/Effects**

#### **Acute**

Harmful if swallowed.

#### **Delayed**

May cause cancer. May cause respiratory system damage, kidney damage, lung damage.

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## **Section 5 - FIRE FIGHTING MEASURES**

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### **Extinguishing Media**

#### **Suitable Extinguishing Media**

Use extinguishing agents appropriate for surrounding fire. **The aqueous dispersed solution does not burn.**

#### **Unsuitable Extinguishing Media**

None known.

### **Special Hazards Arising from the Chemical**

The product itself does not burn.

### **Hazardous Combustion Products**

Not combustible.

### **Advice for firefighters**

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

### **Fire Fighting Measures**

Move container from fire area if it can be done without risk. Dike for later disposal.

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## **Section 6 - ACCIDENTAL RELEASE MEASURES**

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### **Personal Precautions, Protective Equipment and Emergency Procedures**

Wear personal protective clothing and equipment, see Section 8.

### **Methods and Materials for Containment and Cleaning Up**

Stop leak if possible without personal risk. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container.

### **Environmental Precautions**

Avoid release to the environment.



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### Section 7 - HANDLING AND STORAGE

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#### Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Avoid contact with skin and eyes. Use this material with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

#### Conditions for Safe Storage, Including any Incompatibilities

Store locked up

Keep away from incompatible materials. Keep container tightly closed. Do not freeze.

#### Incompatible Materials

Strong alkali, metal salts, strong mineral acids, hydrofluoric acid

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### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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#### Component Exposure Limits

Quartz	14808-60-7
ACGIH:	0.025 mg/m <sup>3</sup> TWA respirable fraction
NIOSH:	0.05 mg/m <sup>3</sup> TWA respirable dust
	50 mg/m <sup>3</sup> IDLH respirable dust
OSHA (US):	((30)/( %SiO <sub>2</sub> + 2) mg/m <sup>3</sup> TWA) total dust; ((250)/( %SiO <sub>2</sub> + 5) mppcf TWA) respirable fraction; ((10)/( %SiO <sub>2</sub> + 2) mg/m <sup>3</sup> TWA) respirable fraction
Mexico:	0.1 mg/m <sup>3</sup> TWA LMPE-PPT respirable fraction
Silica, amorphous	7631-86-9
NIOSH:	6 mg/m <sup>3</sup> TWA
	3000 mg/m <sup>3</sup> IDLH
OSHA (US):	20 mppcf TWA; ((80)/( % SiO <sub>2</sub> ) mg/m <sup>3</sup> TWA)

#### Biological limit value

There are no biological limit values for any of this product's components.

#### Engineering Controls

Provide adequate ventilation. Ensure compliance with applicable exposure limits.



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### Individual Protection Measures, such as Personal Protective Equipment

#### Eye/face protection

Wear safety glasses with side shields.

#### Skin Protection

Wear appropriate chemical resistant clothing.

#### Respiratory Protection

A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.

#### Glove Recommendations

Wear appropriate chemical resistant gloves.

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### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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<b>Appearance</b>	dark gray black slurry	<b>Physical State</b>	liquid
<b>Odor</b>	None, mild odor	<b>Color</b>	Not available
<b>Odor Threshold</b>	Not available	<b>pH</b>	9.0 +/- 0.5
<b>Melting Point</b>	Not available	<b>Boiling Point</b>	100 °C
<b>Freezing point</b>	0 °C	<b>Evaporation Rate</b>	Not available
<b>Boiling Point Range</b>	100°C+/- 5°C	<b>Flammability (solid, gas)</b>	Not flammable
<b>Autoignition</b>	Not available	<b>Flash Point</b>	Not available
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	17.5 mmHg (at 20 °C)
<b>Vapor Density (air=1)</b>	Not available	<b>Specific Gravity (water=1)</b>	1.57 +/- 0.2
<b>Water Solubility</b>	Not soluble	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	Not available	<b>Solubility (Other)</b>	Not available
<b>Density</b>	Not available		

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### Section 10 - STABILITY AND REACTIVITY

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### **Reactivity**

No reactivity hazard is expected.

### **Chemical Stability**

Stable under normal conditions of use.

### **Possibility of Hazardous Reactions**

Hazardous polymerization will not occur.

### **Conditions to Avoid**

None known.

### **Incompatible Materials**

hydrofluoric acid, metal salts, strong alkali, mineral acids

### **Hazardous decomposition products**

#### **Acids (Hydrofluoric)**

silicon tetrafluoride

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## Section 11 - TOXICOLOGICAL INFORMATION

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### **Information on Likely Routes of Exposure**

#### **Inhalation**

May cause respiratory irritation.

#### **Skin Contact**

May cause skin irritation.

#### **Eye Contact**

May cause eye irritation.

#### **Ingestion**

Harmful if swallowed.

### **Acute and Chronic Toxicity**

#### **Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Quartz (14808-60-7)

Oral LD50 Rat 500 mg/kg

Silica, amorphous (7631-86-9)

Oral LD50 Rat >5000 mg/kg

Dermal LD50 Rabbit >2000 mg/kg

Inhalation LC50 Rat >2.2 mg/L 1 h

#### **Immediate Effects**

Harmful if swallowed. May cause eye irritation.

#### **Delayed Effects**



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May cause cancer. May cause respiratory system damage, lung damage, kidney damage. Prolonged exposure to silica can lead to silicosis. Pulmonary tuberculosis, respiratory insufficiency, and acute pulmonary infection.

### **Irritation/Corrosivity Data**

respiratory tract irritation, skin irritation, eye irritation

### **Respiratory Sensitization**

No information available for the product.

### **Dermal Sensitization**

No information available for the product.

### **Component Carcinogenicity**

Quartz	14808-60-7
ACGIH:	A2 - Suspected Human Carcinogen
IARC:	Monograph 100C [2012]; Monograph 68 [1997] (Group 1 (carcinogenic to humans))
NTP:	Known Human Carcinogen (respirable size)
DFG:	Category 1 (causes cancer in man, alveola fraction)
OSHA:	Present (respirable size)
Silica, amorphous	7631-86-9
IARC:	Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

### **Germ Cell Mutagenicity**

No information available for the product.

### **Reproductive Toxicity**

No information available for the product.

### **Specific Target Organ Toxicity - Single Exposure**

respiratory system

### **Specific Target Organ Toxicity - Repeated Exposure**

Respiratory system, kidneys, lungs

### **Aspiration hazard**

No information available for the product.

### **Medical Conditions Aggravated by Exposure**

No data available.

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## **Section 12 - ECOLOGICAL INFORMATION**

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### **Component Analysis - Aquatic Toxicity**



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Silica, amorphous	7631-86-9
Fish:	LC50 96 h Brachydanio rerio 5000 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 440 mg/L IUCLID
Invertebrate:	EC50 48 h Ceriodaphnia dubia 7600 mg/L IUCLID

### Section 13 - DISPOSAL CONSIDERATIONS

#### Disposal Methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Section 14 - TRANSPORT INFORMATION

#### US DOT Information:

UN/NA #: Not Regulated

#### IATA Information:

UN#: Not Regulated

#### TDG Information:

UN#: Not Regulated

### Section 15 - REGULATORY INFORMATION

#### U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

#### SARA Section 311/312 (40 CFR 370 Subparts B and C)

**Acute Health:** Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactivity:** No

#### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Quartz	14808-60-7	No	Yes	Yes	Yes	Yes
Silica, amorphous	7631-86-9	Yes	Yes	Yes	Yes	Yes





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The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer

Quartz	14808-60-7
Carc:	carcinogen , initial date 10/1/88 (airborne particles of respirable size)

### Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Quartz	14808-60-7
	1 %
Silica, amorphous	7631-86-9
	1 %

### Component Analysis - Inventory

Quartz (14808-60-7)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

Silica, amorphous (7631-86-9)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes

## Section 16 - OTHER INFORMATION

### HMIS Rating

Health: 1\* Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

### NFPA Ratings

Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### Summary of Changes

SDS Update :3/19/2015



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### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

### Other Information

#### Disclaimer:

Supplier gives no warranty whatsoever, including the warranties of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser shall determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental, consequential or any other damages arising out of the use or misuse of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights.