

## MATERIAL SAFETY DATA SHEET

Current version: 09 Sept 2011

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### SECTION 1 – Products and Suppliers

- Generic product type:** Silica-based powdered blends
- Trade names:** This MSDS covers all Certech blend grades
- Use (and restrictions):** Blend materials for the manufacture of Certech ceramic cores

**Suppliers and emergency contact information:**

Certech, Inc.  
1 Park Place West Wood-  
Ridge, NJ 07075 USA +1  
(201) 939-7400  
0800-1700hrs local time, Mon-  
Fri.  
<http://www.mtccertech.com/>

### SECTION 2 – Hazard Identification

**Emergency overview:**

These products consist of a silica-based ceramic powder which contains components which present hazards to human health in the form in which they are supplied. The powders typically contain varying amounts of respirable crystalline silica in the form of cristobalite (typically ranging up to 16%).

**Short-term effects:**

These powders are irritating to the eyes, skin and respiratory tract. Avoid breathing or ingesting these powders.

**Chronic health effects:**

Repeated or prolonged exposure to elevated concentrations of airborne dust may aggravate chronic lung disease, skin rashes or asthma. These mixes contain respirable crystalline silica in the form of cristobalite. Prolonged/repeated inhalation of respirable silica may cause delayed lung injury (e.g., silicosis, lung cancer). Dust may cause nose and throat irritation. Avoid creating and breathing airborne dust when handling this material.

**Crystalline Silica (cristobalite):**

- Crystalline silica is classified by the International Agency for Research on Cancer (IARC) as a *Group 1 carcinogen*: Carcinogenic to humans.
- Crystalline silica is classified by the National Toxicology Program as *known to be a human carcinogen*.

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### Physical hazards:

These materials are inert and present negligible physical hazards.

### SECTION 3 – Hazardous Components

Component	CAS Registry No.	EINECS No.
Fused silica	60676-86-0	262-373-8
Silica, crystalline (cristobalite)	14464-46-1	238-455-4
Aluminum oxide	1344-28-1	2150691-6
Zirconium silicate	10101-52-7	233-252-7

### SECTION 4 – First Aid Measures

Immediate first aid measures are appropriate only in cases of acute exposure to high concentrations of dust or fumes.

- Remove affected personnel to an exposure-free environment.
- Flush contamination to eyes and skin with water.
- Remove contaminated clothing.

In response to chronic effects, see above; treat the immediate symptoms and seek professional medical advice.

### SECTION 5 – Fire Fighting Measures

These materials are not combustible. Dust generated from this product would not be expected to create an airborne dust explosion hazard. Use protective clothing and breathing equipment appropriate for the surrounding fire.

### SECTION 6 – Accidental Release Measures

Sweep spilled material into sealable containers; if appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water if permissible by wastewater receiving authority. Recovered material should be placed in sealed containers. Dispose in accordance with international, federal, national, state, and local waste disposal regulations.

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## SECTION 7 – Handling and Storage

Store in closed containers. Practice good housekeeping to avoid the accumulation of dust in the workplace. Avoid creating and breathing airborne dust. Wash hands thoroughly after handling and do not eat or drink in areas where handled.

## SECTION 8 – Exposure Controls and Personal Protection

Exposure limits and guidelines (many jurisdictions have exposure limits and control guidelines for substances not listed elsewhere as hazardous.) Users are advised to consult and comply with local regulations where they exist.

MATERIAL	OSHA PEL	ACGIH TLV
Fused silica	See notes	TLV withdrawn
Silica, crystalline (cristobalite)	See notes	0.025 mg/m <sup>3</sup> (respirable fraction)
Aluminum Oxide (Al metal and insoluble compounds)	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	1 mg/m <sup>3</sup> (respirable fraction)
Zirconium silicate (zirconium compounds as Z)	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> (Ceiling)

(1) 80 mg/m<sup>3</sup> / % of silica. (2) Depending on the percentage and type(s) of silica in the mineral, the OSHA Permissible Exposure Limit (PEL) for respirable dust containing crystalline silica (8-hour TWA) is based on the formula listed in 29 CFR 1910.1000, "Air Contaminants" under Table Z-3, "Mineral Dust." For quartz-containing mineral dust, the PEL = 10 mg/m<sup>3</sup> / (% of silica + 2); for cristobalite or tridymite, the PEL = 5 mg/m<sup>3</sup> / (% of silica + 2); for mixtures, the PEL = 10 mg/m<sup>3</sup> / (% of quartz + 2 (% of cristobalite) + 2 (% of tridymite) + 2). Fused silica PEL = (30 mg/m<sup>3</sup>) / (%SiO<sub>2</sub> + 2).

### Engineering controls:

Use local exhaust ventilation to minimize or eliminate concentrations of airborne contaminants.

### Personal protective equipment:

Use approved respiratory protective equipment to ensure exposures are below the advised or regulatory limits.

### General hygiene considerations:

Do not eat, drink or smoke when handling these products.  
Wash hands after handling these products.

### Environmental exposure controls:

Use engineering controls to minimize the risk of airborne dust.

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### SECTION 9 – Physical and Chemical Properties

Powdered blends – white to beige in color; negligible odor.

### SECTION 10 – Stability and Reactivity

Generally stable and non-reactive.

### SECTION 11 – Toxicological Information

Exposure to crystalline silica can cause silicosis and exacerbate pulmonary tuberculosis and bronchitis. The International Agency for Research on Cancer (IARC) (Monograph vol. 68, 1997) concluded that “crystalline silica from occupational sources inhaled in the form of quartz or cristobalite is carcinogenic to humans (Group 1),” and noted that “carcinogenicity in humans was not detected in all industrial circumstances studied” and “may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity.” In addition to that which is provided in Section 2 and Section 3, toxicological information is available through the U.S. National Institute for Occupational Safety and Health (NIOSH) and the Registry of Toxic Effects of Chemical Substances (RTECS) – website: <http://www.cdc.gov/niosh/ipcsneng/nengrtec.html>. Applicable product components and their respective RTECS numbers are as follows:

Fused silica	VV7310000	Aluminum oxide	BD1200000
Silica, crystalline (cristobalite)	VV7325000		

### SECTION 12 – Ecological Information

This product is relatively inert and would be expected to be of negligible consequence in the environment.

### SECTION 13 – Disposal Considerations

Manage waste materials in accordance with applicable International, Federal, National, State and Local regulations.

### SECTION 14 – Transport Information

This product is not regulated as a hazardous material or dangerous good for transportation purposes by any known authority.

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### SECTION 15 – Regulatory Information

All components of these product grades are listed on the U.S. Toxic Substances Control Act (TSCA) inventory. Crystalline silica (airborne particles of respirable size) is listed on the list of “Chemicals known to the State of California to cause cancer.”

### SECTION 16 – Other Information

**For additional product information contact:**

Certech, Inc.  
1 Park Place West  
Wood-Ridge, NJ 07075  
USA +1 (201) 939-7400  
0800-1700hrs local time, Mon-  
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