


## SAFETY DATA SHEET

### Section 1, Identification

|                            |  |
|----------------------------|--|
| <b>Product Identifier</b>  | : Castrite 220, Castrite Plus  |
| <b>Other Common Names</b>  | : Orthodontic Bracket Casting Investment   |
| <b>Recommended Use</b>     | : Investment Material for Casting Orthodontic Brackets.  |
| <b>Restrictions on Use</b> | : Professional Applications Only.  |
| <b>Manufacturer</b>        | : <b>Emdin International Corporation</b><br>15841 Business Center Drive<br>Irwindale, California, USA 91706<br>Telephone Number 1-626-813-3740<br>Emergency Number 1-626-813-3742<br><i>Monday - Friday, 8:00 A.M. – 4:00 P.M.</i> |

### Section 2, Hazard(s) identification

|  |  |
|--|--|
| <b>Hazard Classification</b>                           | Carcinogenicity Category 1A<br>Specific Target Organ Toxicity, Repeated Exposure Category 1  |
| <b>Signal Word</b>                                     | <b>Danger</b>  |
| <b>Hazard Statement(s)</b><br><i>Physical</i>          | Not Classified.  |
| <i>Health</i>  | <b>H350</b> May cause cancer.<br><b>H372</b> Causes damage to organs through prolonged or repeated exposure.   |
| Pictograms   |   |
| <b>Precautionary Statement(s)</b><br><i>Prevention</i> | <b>P201</b> Obtain special instructions before use.<br><b>P202</b> Do not handle until all safety precautions have been read and understood.<br><b>P260</b> Do not breathe dust.<br><b>P264</b> Wash hands thoroughly after handling.<br><b>P270</b> Do not eat, drink or smoke when using this product.<br><b>P280</b> Wear protective gloves, clothing, eye and face protection. |
| <i>Response</i>  | <b>P308 + P313</b> IF exposed or concerned: Get medical attention.<br><b>P314</b> Get Medical advice/attention if you feel unwell.   |
| <i>Storage</i>   | <b>P405</b> Store locked up.   |
| <i>Disposal</i>  | <b>P501</b> Dispose of contents/container in accordance with national regulation.  |
| <b>Hazard(s) Not Otherwise Classified (HNOC)</b>       | May cause mechanical irritation of the eyes, skin, nose and throat.<br>Repeated exposure may cause skin dryness or cracking.   |

### Section 3, Composition/information on ingredients

| Chemical Identity          | Common Name     | CAS Number | WT%      |
|----------------------------|-----------------|------------|----------|
| Crystalline Silica, Quartz | Silicon Dioxide | 14808-60-7 | 60 – 100 |

There are no additional ingredients present which, within the current knowledge of the manufacturer and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Exact percentage of composition has been withheld due to batch-to-batch variation and because the SDS is used for a group of substantially similar mixtures.

### Section 4, First-aid measures

#### Description of Necessary First-Aid Measures

|                     |  |
|---------------------|--|
| <i>Inhalation</i>   | No special measures required. If inhaled, remove to fresh air. Get medical attention if adverse health effects persist or are severe.              |
| <i>Skin Contact</i> | No special measures required. If contacted, flush with plenty of water. Get medical attention if adverse health effects persist or are severe.     |
| <i>Eye Contact</i>  | No special measures required. If contacted, rinse with plenty of water. Get medical attention if adverse health effects persist or are severe.     |
| <i>Ingestion</i>    | No special measures required. If ingested, drink small quantities of water. Get medical attention if adverse health effects persist or are severe. |

#### Most Important Symptoms/Effects, Acute and Delayed

|                          |  |
|--------------------------|--|
| <i>Inhalation</i>        |  |
| <i>Acute (immediate)</i> | May cause mechanical irritation of nose, throat and/or respiratory system. Symptoms include sneezing, coughing and/or shortness of breath.   |
| <i>Chronic (delayed)</i> | Prolonged repeated exposure may cause silicosis and/or cancer. Symptoms include shortness of breath, possible fever, fatigue, loss of appetite, chest pain, dry nonproductive cough, and/or respiratory failure that may eventually lead to death. |
| <i>Skin Contact</i>      |  |
| <i>Acute (immediate)</i> | May cause mechanical irritation of skin. Symptoms include itching.   |
| <i>Chronic (delayed)</i> | Prolonged repeated exposure may cause dryness of skin. Symptoms include itching, inflammation, scaling and/or cracked skin.  |
| <i>Eye Contact</i>       |  |
| <i>Acute (immediate)</i> | May cause mechanical irritation of eyes. Symptoms include pain, a gritty feeling in the eye, tearing and/or redness.   |
| <i>Chronic (delayed)</i> | May cause corneal abrasion. Symptoms include pain, a gritty feeling in the eye, tearing, redness, sensitivity to light, headache and/or blurred/double vision.   |
| <i>Ingestion</i>         |  |
| <i>Acute (immediate)</i> | May cause mechanical irritation of mouth and/or throat. Symptoms include pain and/or coughing.   |
| <i>Chronic (delayed)</i> | May cause intestinal blockage. Symptoms include cramping, belly pain that comes and goes, vomiting, bloating, a hard belly and/or constipation.  |

#### Indication of Any Immediate Medical Attention and Special Treatment Needed

None required.

## Section 5, Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable Extinguishing Media</b>                | Use an extinguishing media appropriate for the surrounding materials.   |
| <b>Specific Hazards Arising from the Chemical</b>  | Not flammable, combustible, or explosive.   |
| <b>Special Protective Actions for Firefighters</b> | Wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode. Use standard firefighting procedures and consider the hazards of other involved materials. Cool material exposed to heat with water spray and remove if no risk is involved. Collect contaminated firefighting water separately. Keep away from drains, surface and ground water. |

## Section 6, Accidental release measures

|   |  |
|---|--|
| <b>Personal Precautions, Protective Equipment, and Emergency Procedures</b> | Avoid generating airborne dust during clean-up.<br>See Section 8 of the SDS for Personal Protective Equipment.<br>No specific emergency procedures.  |
| <b>Environmental Precautions</b>  | No specific environmental precautions.<br>Report releases as required by local and national authorities.   |
| <b>Methods and Materials for Containment and Cleaning Up</b>                | Avoid dry sweeping. Wet before sweeping. Do not use compressed air.<br>Vacuum spilled material using vacuums equipped with HEPA filters.<br>Flush area with water to remove residual material.<br>Collect in labeled containers and seal securely.<br>Dispose of in closed containers. |

## Section 7, Handling and storage

|   |   |
|---|---|
| <b>Precautions for Safe Handling</b>                                | Avoid generating dust. Do not breathe dust.<br>Do not rely on sight to determine if dust is in the air.<br>Respirable crystalline silica dust may be in air without a visible dust cloud.<br>Use adequate exhaust ventilation and dust collection to reduce dust levels.<br>Maintain and test ventilation and dust collection equipment.<br>Do not permit dust to collect on surfaces, machinery and/or equipment.<br>Keep airborne dust concentrations below permissible exposure limits.<br>Wash hands thoroughly after handling.<br>Do not eat, drink or smoke when using this product.<br>Wear protective gloves, clothing, eye and face protection.<br>Observe good industrial hygiene practices.<br>Use appropriate lifting techniques. |
| <b>Conditions for Safe Storage, Including Any Incompatibilities</b> | Use dust collection to trap dust produced during loading and unloading.<br>Keep containers closed and avoid accidental tearing, breaking, or bursting.<br>See Section 10 of the SDS for Incompatibilities.  |

## Section 8, Exposure controls/personal protection

|  |   |  |   |
|--|---|--|---|
| <b>Control Parameters</b>                              |   |  |   |
| <b>Chemical Identity</b><br>Crystalline Silica, Quartz | <b>OSHA (PEL)</b><br>0.05 mg/m <sup>3</sup> TWA<br>(respirable dust)  | <b>ACGIH (TLV)</b><br>0.025 mg/m <sup>3</sup> TWA<br>(respirable dust) | <b>NIOSH (REL)</b><br>0.05 mg/m <sup>3</sup> TWA<br>(respirable dust) |
| <b>Appropriate Engineering Controls</b>                | Use adequate general or local exhaust ventilation to maintain concentrations in the workplace below the applicable exposure limits. |  |   |

**Individual Protection Measures,  
Such as Personal Protective  
Equipment (PPE)**

*Eye/Face Protection*

Safety glasses with side shields or goggles are recommended.

*Skin/Body Protection*

For prolonged or repeated skin contact use suitable protective gloves. Long sleeved shirts and pants are recommended for workers suffering from dermatitis or sensitive skin.

*Respiratory Protection*

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

*Thermal Hazards*

None.

**Section 9, Physical and chemical properties**

**Appearance**

*Physical State*

Solid.

*Form*

Powder.

*Color*

White.

**Odor**

Odorless.

**Odor Threshold**

Not applicable.

**pH**

6 – 8

**Melting Point / Freezing Point**

3110 °F (1710 °C)

**Initial Boiling Point and Boiling Range**

4046 °F (2230 °C).

**Flash Point**

Not applicable.

**Evaporation Rate**

Not applicable.

**Flammability (solid, gas)**

Not applicable.

**Upper/lower Flammability or Explosive Limits**

*Flammability Limit – Lower (%)*

Not applicable.

*Flammability Limit – Upper (%)*

Not applicable.

*Explosive Limit – Lower (%)*

Not applicable.

*Explosive Limit - Upper (%)*

Not applicable.

**Vapor Pressure**

Not applicable.

**Vapor Density**

Not applicable.

**Relative Density**

2.65

**Solubility in Water**

Insoluble.

**Partition Coefficient (n-octanol/water)**

Not applicable.

**Auto-Ignition Temperature**

Not determined.

**Decomposition Temperature**

Not determined.

**Viscosity**

Not applicable.

**Section 10, Stability and reactivity**

**Reactivity**

Not reactive under normal conditions of use.

**Chemical Stability**

Stable.

**Possibility of Hazardous  
Reactions**

Contact with powerful oxidizing agents, such as fluorine, chlorine trifluoride and oxygen difluoride, may cause fires.

**Conditions to Avoid**

Avoid generation of dust in handling and use.

**Incompatible Materials**

Powerful oxidizers such as fluorine, chlorine trifluoride, oxygen difluoride and hydrofluoric acid.

**Hazardous Decomposition  
Products**

Crystalline Silica, Quartz will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrafluoride.

## Section 11, Toxicological information

### Information on the Likely Routes of Exposure

#### Inhalation

##### Low Exposure

May cause mechanical irritation of nose, throat and/or respiratory system, as well as lung diseases, including chronic or ordinary silicosis (after 10 to 20 or more years of initial exposure with prolonged repeated inhalation of low concentrations) and/or cancer.

##### Severe Exposure

May cause mechanical irritation of nose, throat and/or respiratory system, as well as lung diseases, including accelerated silicosis (within five years of initial exposure with prolonged repeated inhalation of high concentrations), acute silicosis (within a few months of initial exposure with repeated inhalation of very-high concentrations) and/or cancer.

#### Skin Contact

##### Low Exposure

May cause mechanical irritation of skin and/or dryness of skin.

##### Severe Exposure

Same as above.

#### Eye Contact

##### Low Exposure

May cause mechanical irritation of eyes and/or corneal abrasion.

##### Severe Exposure

Same as above.

#### Ingestion

##### Low Exposure

May cause mechanical irritation of mouth, throat and/or intestinal blockage.

##### Severe Exposure

Same as above.

### Symptoms Related to the Physical, Chemical and Toxicological Characteristics

#### Inhalation

##### Low Exposure

Symptoms include sneezing, coughing, shortness of breath, possible fever, fatigue, loss of appetite, chest pain, dry nonproductive cough, respiratory failure that may eventually lead to death.

##### Severe Exposure

Same as above.

#### Skin Contact

##### Low Exposure

Symptoms include itching, inflammation, scaling and/or cracked skin.

##### Severe Exposure

Same as above.

#### Eye Contact

##### Low Exposure

Symptoms include pain, a gritty feeling in the eye, tearing, redness, sensitivity to light, headache and/or blurred/double vision.

##### Severe Exposure

Same as above.

#### Ingestion

##### Low Exposure

Symptoms include pain, coughing, cramping, belly pain that comes and goes, vomiting, bloating, a hard belly and/or constipation.

##### Severe Exposure

Same as above.

### Delayed and Immediate Effects and also Chronic Effects from Short- and Long-term Exposure

#### Acute Toxicity

Not available.

#### Irritation

Not available.

|   |  |
|---|--|
| <i>Corrosion</i>  | Not available.   |
| <i>Sensitization</i>                                      | Not available.   |
| <i>Mutagenicity</i>                                       | Not available.   |
| <i>Carcinogenicity</i>                                    | Crystalline Silica, Quartz (CAS 14808-60-7)<br><b>IARC</b> - "Carcinogenic to Humans" (Group 1).<br><b>NTP</b> - "Known to be a Human Carcinogen". |
| <i>Reproductive Toxicity</i>                              | Not available.   |
| <i>Teratogenicity</i>                                     | Not available.   |
| <i>Specific Target Organ Toxicity (single exposure)</i>   | Not available.   |
| <i>Specific Target Organ Toxicity (repeated exposure)</i> | Crystalline Silica, Quartz (CAS 14808-60-7)<br>STOT-RE (Category 1) Prolonged repeated exposure may cause silicosis.                               |
| <i>Aspiration Hazard</i>                                  | Due to the physical form of the product it is not an aspiration hazard.  |

**Numerical Measures of Toxicity**

| Chemical                   | Organism               | Data                     |
|----------------------------|------------------------|--------------------------|
| Crystalline Silica, Quartz | Rat Terrestrial Rodent | LD50 Oral > 22,500 mg/kg |

**Section 12, Ecological information**

|                                      |                           |
|--------------------------------------|---------------------------|
| <b>Ecotoxicity</b>                   | Not known to be ecotoxic. |
| <b>Persistence and Degradability</b> | Not degradable.           |
| <b>Bioaccumulative Potential</b>     | Not bioaccumulative.      |
| <b>Mobility in Soil</b>              | Not mobile in soil.       |
| <b>Other Adverse Effects</b>         | No data available.        |

**Section 13, Disposal considerations**

|                         |  |
|-------------------------|--|
| <b>Disposal Methods</b> | Discard product, residue, container in compliance with national regulations. |
|-------------------------|--|

**Section 14, Transport information**

|   |                 |
|---|-----------------|
| <b>UN Number</b>  | None.           |
| <b>UN Proper Shipping Name</b>  | Not regulated.  |
| <b>Transport Hazard Class(es)</b>   | None.           |
| <b>Packing Group, if Applicable</b>   | None.           |
| <b>Environmental Hazards</b>  | None.           |
| <b>Special Precautions for User</b>   | None known.     |
| <b>Transport in Bulk (according to Annex II of MARPOL 73/78 and the IBC Code)</b> | Not determined. |

## Section 15, Regulatory information

### US Federal Regulations

*Clean Air Act Section 112(b)  
Hazardous Air Pollutants (HAPs)* Not listed.

*Clean Air Act Section 602  
Class I Substances* Not listed.

*Clean Air Act Section 602  
Class II Substances* Not listed.

*DEA List I Chemicals  
(Precursor Chemicals)* Not listed.

*DEA List II Chemicals  
(Essential Chemicals)* Not listed.

*Safe Drinking Water Act  
(SDWA)* Not listed.

*OSHA Specifically Regulated  
Substances (29 CFR 1910.1001-  
1050)* Not listed.

*CERCLA Hazardous Substance  
List (40 CFR 302.4)* Not listed.

*SARA Section 302/304  
(extremely hazardous substance)* Not listed.

*SARA Section 311/312  
(hazardous chemical)* Crystalline Silica, Quartz (CAS 14808-60-7)  
Delayed (Chronic) Health Hazard

*SARA Section 313  
(TRI reporting)* Not regulated.

### US State Regulations

*California Proposition 65* Crystalline Silica, Quartz (CAS 14808-60-7)  
Crystalline silica (airborne particles of respirable size) is classified as a substance known to the State of California to be a carcinogen.

*California Inhalation Reference  
Exposure Level (REL)* Crystalline Silica, Quartz (CAS 14808-60-7)  
California established a chronic non-cancer effect REL of 3 µg for silica (crystalline, respirable). A chronic REL is an airborne level of a substance at or below which no non-cancer health effects are anticipated in individuals indefinitely exposed to the substance at that level.

*Massachusetts Toxics Use  
Reduction Act (TURA)* Crystalline Silica, Quartz (CAS 14808-60-7)  
Silica crystalline (respirable size, <10 microns) is "toxic" for purposes of the Massachusetts Toxic Use Reduction Act.

*Pennsylvania Worker and  
Community Right to Know Act* Crystalline Silica, Quartz (CAS 14808-60-7)  
Quartz is a hazardous substance under the Act, but it is not a special hazardous substance or an environmental hazardous substance.

*Texas Commission on  
Environmental Quality* Crystalline Silica, Quartz (CAS 14808-60-7)  
The Texas CEQ has established chronic and acute Reference Values and short-term and long-term Effects Screening Levels for crystalline silica (quartz).

## Section 16, Other information

**Issue Date** October 19, 2015  
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**Version #** 02

### Consumer Warning

### Key/legend to Abbreviations and Acronyms

**ACGIH** - American Conference of Governmental Industrial Hygienists  
**ANSI** - American National Standards Institute  
**CEQ** - Commission on Environmental Quality  
**CERCLA** - Superfund or Comprehensive Environmental Response, Compensation, and Liability Act of 1980  
**DEA** - Drug Enforcement Administration  
**IARC** - International Agency for Research on Cancer  
**IBC** - International Building Code  
**MARPOL 73/78** - Marine Pollution 1973/1978  
**NIOSH** - National Institute for Occupational Safety and Health  
**NTP** - National Toxicology Program  
**OSHA** - Occupational Safety and Health Administration  
**PEL** - Permissible Exposure Limit  
**REL** - Recommended/Reference Exposure Limit  
**SARA** - Superfund Amendments and Reauthorization Act of 1986  
**SDS** - Safety Data Sheet  
**TLV** - Threshold Limit Value  
**TRI** - Toxics Release Inventory

### Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.