

# MATERIAL SAFETY DATA SHEET

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Name: Customcote® Binder

Manufacturer: Ransom & Randolph  
Address: 3535 Briarfield Boulevard  
Maumee, Ohio 43537, United States of America

Information Telephone Number: (419) 865-9497  
Emergency Telephone Number: (419) 865-9497 (not available outside office hours)

Product Use: Ceramic shell binder for investment casting

Date of Last Revision: 16 September 2009

MSDS Number: R177

Contact person at above address: Don Youel email: [don.youel@dentsply.com](mailto:don.youel@dentsply.com)

## SECTION 2 HAZARDS IDENTIFICATION

Emergency Overview: May cause eye irritation. Prolonged skin contact may cause mild skin irritation. Amorphous silica may be converted to crystalline silica (cristobalite) when subjected to very high temperatures (1700° F). Exposure to respirable crystalline silica may cause lung disease and cancer.

EU Preparation Classification (1999/45/EC): Not a dangerous preparation

## SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

Ingredient	CAS No./EINECS No.	Percent (by wt)	EC Substance Classification (67/548/EEC)
Silica, amorphous	7631-86-9 / 231-545-4	10-30	Not applicable

See Section 16 for further information.

## SECTION 4 FIRST AID MEASURES

Eye Contact: Flush eyes with large quantities of water, holding the eyelids apart. Get medical attention if irritation develops and persists.

Skin Contact: No first aid is generally required. Wash skin with soap and water after use.

Ingestion: If swallowed, drink 1 glass of water to dilute. Never give anything by mouth to an unconscious or convulsing person. Get medical attention.

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

## SECTION 5 FIRE FIGHTING PROCEDURES

Extinguishing Media: Use media appropriate to the surrounding fire.

Firefighting Procedures: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus in fires involving chemicals.

Unusual Fire/Explosion Hazards: None known.

Known or Anticipated Hazardous Products of Combustion: Thermal decomposition may produce carbon and nitrogen oxides.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Wear appropriate protective clothing as described in Section 8. Collect with an inert material and place in appropriate container for use. Report releases as required by local, state and federal authorities.

Personal Precautions: Avoid contact with eyes and skin. Use with adequate ventilation.

Environmental Precautions: Prevent entry into sewers and waterways...

## SECTION 7 HANDLING AND STORAGE

Handling: Avoid contact with the eyes and skin. Once the product is cured, avoid breathing dust, especially during the mold knockout stage of the casting process. Wear protective clothing and equipment as described in Section 8. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

Storage: Store in a cool, dry, well ventilated area away from incompatible materials. Protect from physical damage. Keep from freezing. Keep out of direct sunlight.

## SECTION 8 EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational Exposure Limits:

Silica, amorphous	80 mg/m <sup>3</sup> TWA PEL % Silica 2.1 mg/m <sup>3</sup> TWA UK WEL 4 mg/m <sup>3</sup> TWA MAK
Crystalline Silica, Cristobalite*	0.025 mg/m <sup>3</sup> TWA ACGIH TLV (respirable fraction) 1 X 10 mg/m <sup>3</sup> TWA PEL (respirable fraction) 2 (% Silica + 2) 0.3 mg/m <sup>3</sup> TWA UK WEL

\*Portions of the amorphous silica may be converted to crystalline silica (cristobalite) when subjected to higher temperatures (e.g. 1700°F), such as when used in a mold for ferrous and other high temperature alloy castings. The exposure to crystalline silica is highest at the mold knockout stage of the casting process.

Engineering Controls: Use with adequate local exhaust ventilation to maintain exposures below the occupational exposure limits.

Personal Protective Equipment:

Eye Protection: Safety glasses or goggles if needed to avoid eye contact

Skin Protection: Wear rubber or other impervious gloves to avoid prolonged or repeated contact.

Respiratory Protection: If the exposure limits are exceeded, an approved dust/mist respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with applicable regulations and good industrial hygiene practice.

Other Protective Clothing or Equipment: Impervious clothing as needed to avoid contamination of personal clothing.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Milky white liquid with a slight ammonia odor.

Boiling Point: 212°F (100°C)

Melting Point: Not available

Freezing Point: 32°F (0°C)

Specific Gravity: 1.11-1.12

Solubility in Water: 100%

pH: 10.2-10.7

Vapor Pressure (mmHg): 17.5

Vapor Density: Not determined

Evaporation Rate: Not determined  
% Volatile by Volume: >70%  
Flammable Limits in Air:  
LEL: Not applicable  
UEL: Not applicable

Viscosity: Not applicable  
Flashpoint: Not flammable  
Autoignition Temperature: Not applicable

## SECTION 10 STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid: Contact with water reactive materials.

Incompatibility with Other Materials: Avoid acids. Metal salts will cause the product to coagulate.

Hazardous Decomposition Products: Thermal decomposition may produce carbon and nitrogen oxides.

Hazardous Polymerization: Will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects:

Eyes: Contact may cause irritation with redness and tearing.

Skin: May cause mild skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: Inhalation of vapors or mists may cause irritation to the nose, throat and upper respiratory tract with coughing and sneezing. Once the product is cured, inhalation of dust may cause upper respiratory tract irritation.

Chronic Health Effects: See below.

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

Although amorphous silica is not a carcinogen as purchased in this product, portions of it may be converted to crystalline silica (cristobalite) when subjected to higher temperatures (e.g. 1700°F), such as when used in a mold for ferrous and other high temperature alloy castings. The exposure to crystalline silica is highest at the mold knockout stage of the casting process.

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. Prolonged or repeated skin contact may cause dermatitis.

Crystalline silica quartz is listed as "Carcinogenic to Humans" (Group 1) by IARC and "Known to be a Human Carcinogen" by NTP.

Medical Conditions Aggravated by Exposure: Individuals with pre-existing skin and respiratory disorders may be at increased risk from exposure.

Acute Toxicity Data:

Silica, amorphous: Oral Rat LD50 - >15 gm/kg

## SECTION 12 ECOLOGICAL INFORMATION

Silica, amorphous: 96 hr LC50 zebrafish: >5,000 mg/L  
48 hr EC50 ceriodaphnia dubia: 7,600 mg/L

## SECTION 13 DISPOSAL CONSIDERATIONS

Dispose of product and packaging in accordance with national, state, and local regulations.

## SECTION 14 TRANSPORT INFORMATION

Road/Rail transport - DOT (USA) Shipping Name: Not Regulated

DOT Hazard Class: N/A

UN Number: N/A

DOT Labels Required (49CFR172.101): N/A

Air transport - IATA Shipping Name: Not Regulated

IATA Hazard Class: N/A

UN Number: N/A

IATA Hazard Labels Required: N/A

Sea transport - IMDG Shipping Name: Not Regulated

IMDG Class: N/A

UN Number: N/A

IMDG Label: N/A

## SECTION 15 REGULATORY INFORMATION

### INTERNATIONAL REGULATIONS:

Canadian Environmental Protection Act: All of the components in this product are listed on the Domestic Substances List (DSL).

Canadian WHMIS Classification: Class D Division 2A (quartz)

European Community Labeling: None Required

European Inventory of New and Existing Chemicals Substances (EINECS): All of the components in this product are listed on the EINECS inventory.

Australian Inventory of Chemical Substances: All of the components in this product are listed on the AICS for Australia.

China Inventory of Existing Chemicals and Chemical Substances: All of the components in this product are listed on the IECSC for China.

Japanese Existing and New Chemical Substances: All of the components in this product are listed on the Japanese ENCS list.

Korean Existing Chemicals List: All of the components in this product are listed on the KECL for Korea.

Philippine Inventory of Chemicals and Chemical Substances: All of the components in this product are listed on the PICCS.

### U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: 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.

SARA TITLE III:

Hazard Category For Section 311/312: Acute health, Chronic health

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Section 302 Extremely Hazardous Substances (TPQ): None

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

**U.S. STATE REGULATIONS**

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: ethylene oxide 0.8 ppm (cancer, female reproductive toxicity), 1,4 dioxane <0.08 ppm (cancer), 1,3 Butadiene (cancer, developmental, female and male reproductive toxicity). In use, respirable crystalline silica may be formed (cancer).

<b>SECTION 16 OTHER INFORMATION</b>
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HMIS Hazard Rating:

Health –1      Fire Hazard – 0      Reactivity – 0