

MATERIAL SAFETY DATA SHEET

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

Product Name: Primcote® 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)

Email: don.youel@dentsply.com

Product Use: Ceramic shell binder for investment casting

Date of Last Revision: October 2, 2009

MSDS Number: R096

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	10-35	Not applicable

See Section 16 for further information on EU Classification.

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 an approved positive pressure self-contained breathing apparatus. Cool exposed intact containers with water spray.

Unusual Fire/Explosion Hazards: None known.

Known or Anticipated Hazardous Products of Combustion: Carbon oxides and hydrocarbons.

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 ³ TWA PEL % Silica 2.1 mg/m ³ TWA UK WEL 4 mg/m ³ TWA MAK
Crystalline Silica, Cristobalite*	0.025 mg/m ³ TWA ACGIH TLV (respirable fraction) $\frac{1}{2} \times \frac{10 \text{ mg/m}^3}{(\% \text{ Silica} + 2)}$ TWA PEL (respirable fraction) 0.3 mg/m ³ 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: Not determined

Solubility in Water: Miscible

pH: Not determined

Vapor Pressure (mmHg): Not determined

Vapor Density: Not determined

Evaporation Rate: Not determined
% Volatile by Volume: >45%
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 metal salts.

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

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 in accordance with federal, state, and local regulations.

SECTION 14 TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated
DOT Hazard Class: N/A
UN Number: N/A
DOT Labels Required (49CFR172.101): N/A

IATA Shipping Name: Not Regulated
IATA Hazard Class: N/A
UN Number: N/A
IATA Hazard Labels Required: N/A

IMDG Shipping Name: Not Regulated
IMDG Class: N/A
UN Number: N/A
IMDG Label: N/A

SECTION 15 REGULATORY INFORMATION
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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

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).

INTERNATIONAL REGULATIONS:

Canadian WHMIS Classification: Not a controlled product.

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

European Community Labeling: Not classified as hazardous.

SECTION 16 OTHER INFORMATION

HMIS Hazard Rating:
 Health –1 Fire Hazard – 0 Reactivity – 0