**DENTSPLY International**

**Material Safety Data Sheet**

**Ransom & Randolph**

## 1. Product and Company Name

| | |
|---|---|
| *Product Name*<br>Primcote® Binder | *MSDS Code Number*<br>096 |
| *Trade Name & Synonyms*<br>Silica Sol formulation | *Date of Last Revision*<br>07/03 |
| *Chemical Name* | *Manufacturer*<br>Ransom & Randolph |
| *C.A.S. Number* | *Address*<br>3535 Briarfield Blvd, Maumee, OH 43537 |
| *Grades or Minor Variant Identities* | *Information Telephone Number*<br>419/865-9497 FAX 419/865-9997 |
| *Product Use*<br>Colloidal silica based primary binder for investment casting | *Emergency Telephone Number*<br>419/865-9497 |

## 2. Composition

| Hazardous Components | C.A.S. Number | % |
|---|---|---|
| Silica (amorphous) | 7631-86-9 | <50 |
| Dipotassium flourescein | 6417-85-2 | <10 |
| Oxirane polymer with 2 ethyl hexyl dihydrogen phosphate | 68460-10-6 | <10 |
| | | |

## 3. Hazardous Identification

*Emergency Overview*

Contains alkaline material. May cause irritation. Avoid contact with eyes, skin, and clothing.

| *Routes of Exposure* | *Signs & Symptoms* | *Single, Repeated, or Lifetime Exposure* | *Severity (Mild, Moderate, Severe)* | *Acute and Chronic Health Effect(s)* | *Target Organ(s)* |
|---|---|---|---|---|---|
| *Eye* | Irritation | | | | |
| *Skin* | May tend to dry out skin. | | | | |
| *Inhalation* | | | | | |
| *Ingestion* | | | | | |
| *Other* | | | | | |

*Medical Conditions Aggravated by Exposure*
None known

*Carcinogenicity (IARC, NTP)*
In the shipped form, this product was not evaluated by the IARC, not listed by NTP, and not regulated by OSHA.

Although amorphous silica is not a carcinogen as purchased in this product, portions of it may convert 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.

The specifics on carcinogenicity of respirable crystalline silica follow:

The exposure limits for respirable crystalline silica; specifically cristobalite, established by OSHA-PEL = 0.05 $mg/m^3$.

The IARC and NTP report the following on the carcinogenicity of respirable crystalline silica:

> The National Toxicology Program (NTP) published its Ninth Annual Report on Carcinogens which concludes that "silica, crystalline (respirable)" is known to be a human carcinogen. The NTP conclusion is based on experimental animals and limited evidence in humans.
>
> IARC Monograph Volume 68: Silica, silicates, coal dust, and para-aramid fibrils states that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the forms of quartz and cristobalite from occupational sources. Crystalline silica is categorized in the "Group 1" category which the IARC defines as the agent is carcinogenic to humans.

For more detailed information on the effects of crystalline silica, contact the manufacturer.

*Potential Environmental Effects*

## 4. First Aid Measures

| *Routes of Exposure* | *First Aid Instructions* | *Immediate Medical Attention* | *Delayed Effects* |
|---|---|---|---|
| *Eye* | Flush with flowing water for at least 15 minutes. | If irritation persists, call a physician. | |
| *Skin* | Wash with soap and water. | | |
| *Inhalation* | Remove to fresh air. | Call a physician. | |
| *Ingestion* | | Call a physician. | |

*Other*
Never give fluids or induce vomiting if patient is unconscious or having convulsions.

*Note to Physicians (Treatment, Testing, and Monitoring)*

## 5. Fire-fighting Measures

| *Flashpoint: (Method)* | *Flammable (Explosive) Limits in Air* | | *Autoignition Temperature:* | *Other* |
|---|---|---|---|---|
| N/A | LEL: N/A | *UEL:* N/A | | |

| *Flame Propagation or Burning Rate (for solids):* | *Properties Contributing to Fire Intensity* | *Flammability Classification NFDA Rating*: |
|---|---|---|
| | | |

| *Extinguishing Media* | *Extinguishing Media to Avoid* | |
|---|---|---|
| Foam, dry chemical, carbon dioxide, water spray | | |

*Protection and Procedures for Firefighters:*

*Unusual Fire and Explosion Hazards:*

None

## 6. Accidental Release Measures

*Containment Techniques*

Spills should be contained and placed in suitable containers for disposal in a licensed facility.

*Spill/Leak Clean-Up Procedures and Equipment*

Clean up promptly as spills are a slipping hazard.

*Evacuation Procedures*

*Special Instructions*

*Reporting Requirements*

## 7. Handling and Storage

*Handling Practices and Warnings*

*Storage Practices and Warnings*

Keep from freezing. Binder stored in transparent or translucent containers should be sheltered from direct sunlight.

## 8. Exposure Controls/Personal Protection

| *Ventilation* | *Other Engineering Controls* | |
|---|---|---|
| General | Local exhaust | |
| *Routes of Entry:* | *Personal Protective Equipment (PPE) for Normal Use:* | *PPE for Emergencies:* |
| *Eye/Face* | Nor normally necessary but recommended. Chemical workers goggles. | |
| *Skin* | Protective gloves. | |
| *Inhalation* | Use NIOSH approved respirator for dust and particulates, N95 filter classification (e.g. 3M 8210). | |

*General Hygiene Considerations and Work Practices*

*Other Protective Measures and Equipment*

Eye wash and shower.

## 9. Physical and Chemical Properties

| *Appearance* | | *Odor* |
|---|---|---|
| Yellow liquid | | |
| *Normal Physical State:* | *Boiling Point* | 212° F (100° C) |
| *Liquid* X *Gas* | *Melting Point* | 32° F (0° C) |
| *Solid* | *Freezing Point* | 32° F (0° C) |

| *Specific Gravity or Density ($H_20$=1)* | *Solubility in Water* | *pH* |
|---|---|---|
| 1.180 | 100% | 10.6 (typical) |
| *Vapor Pressure (mm Hg.)* | *Vapor Density (AIR = 1)* | *Evaporation Rate (Butyl Acetate=1)* |
| 17.5 mm Hg | 0.016 | |

*Other*

% Volatile by Volume: 65%

## 10. Stability and Reactivity

*Incompatibility (Materials to Avoid)*

Acids. Metal salts will coagulate product.

*Hazardous Products Produced During Decomposition*

| *Hazardous Polymerization?* | *May Occur* | *May Not Occur* | *Conditions to Avoid* |
|---|---|---|---|
| | | Y | |
| *Stability?* | *Stable* | *Unstable* | *Conditions to Avoid* |
| | Y | | Freezing |

## 11. Toxicological Information

*Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data*

## 12. Ecological Information

*Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements*

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

## 13. Disposal Considerations

*Regulations*

Dispose of waste materials and containers in a licensed facility.

*Properties (Physical/Chemical) Affecting Disposal*

## 14. Transport Information

| *Regulated for shipping?* | *Proper Shipping Name* | *Packing Group* |
|---|---|---|
| *Yes* *No* X | Not Regulated | N/A |
| *Do changes in quality, packaging, or shipment method change product classification?* | *Hazard Class* | *Identification Number* |
| *Yes* *No* X | N/A | N/A |

*Other*

## 15. Regulator Information

*Federal Regulations*

*International Regulations*

*Other*

This product contains trace amounts of 1, 3 Butadiene, a chemical known to the State of California to cause cancer.

## 16. Other Information

| | | | |
|---|---|---|---|
| **NFPA Hazard Rating** | **Health:** 1 | **Flammability:** 0 | **Reactivity:** 0 |
| **HMIS Hazard Rating** | **Health:** 1 | **Flammability:** 0 | **Reactivity:** 0 |
| | **Personal Protection:** Use NIOSH/OSHA approved respirator. | | |