



MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

DESCRIPTION: Cascophen LT-5210J

1. Chemical Product and Company Identification

DESCRIPTION: **Cascophen LT-5210J**
 PRODUCT CODE: 303229
 PRODUCT TYPE: Liquid PRF Resin
 APPLICATION: PRF Beam Laminating Resin

CASCOPHEN® is a trademark of Borden Chemical Investments, Inc., registered in the USA.

Manufacturer/Supplier Information

MSDS prepared by:
 Hexion Specialty Chemicals, Inc.
 155 West A Street, Bldg. A-1
 Springfield, OR
 97477

For Emergency Medical Assistance
 Call Health & Safety Information Services
 1-866-303-6949

For additional health and safety or regulatory information, call (541)744-3256.

2. Composition, Information on Ingredients

The ingredients listed below have been associated with one or more immediate and/or delayed(*) health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING, HANDLING, OR EXPOSURE TO THESE INGREDIENTS, READ AND UNDERSTAND THE MSDS.

| | % by weight |
|---------------------|-------------|
| 108-95-2 *Phenol | 5.0 - 10.0 |
| 64-17-5 *Ethanol | 1.0 - 5.0 |
| 108-46-3 Resorcinol | 1.0 - 5.0 |

Any applicable Canadian trade secret numbers will be listed in Section 15.2.

3. Hazards Identification

3.1 Emergency Overview

Appearance: Clear, reddish-brown liquid
 Odor: Slight alcoholic

WARNING!

COMBUSTIBLE

Will polymerize at high temperatures with some evolution of heat.

Hazardous polymerization may occur.

Overexposure may cause central nervous system depression. May cause irritation of nose, throat and lungs if allowed to become airborne.

Causes chemical burns to eyes.

HMIS Rating

| | | |
|--------------|---|--------------|
| HEALTH | = | 3 (serious) |
| FLAMMABILITY | = | 2 (moderate) |
| REACTIVITY | = | 1 (slight) |
| CHRONIC | = | * |

3.2 Potential Health Effects

Immediate Hazards

| | |
|-------------|---|
| INGESTION: | Not expected to be harmful under normal conditions of use. |
| INHALATION: | Not expected to be harmful under normal conditions of use. However, overexposure may cause central nervous system effects. Also, if allowed to become airborne, may cause irritation of nose, throat and lungs. |
| SKIN: | May cause irritation on prolonged or repeated contact. |
| EYES: | Causes chemical burns. |

64-17-5 Ethanol

Can cause central nervous system depression. Signs and symptoms may include headache, dizziness, nausea, vomiting and drowsiness.

108-46-3 Resorcinol

This chemical is slightly to moderately toxic by ingestion, inhalation and skin absorption. Signs of acute poisoning in rats include central nervous system stimulation, tremors and convulsions followed by depression and death, or complete recovery within 8-24 hours. Animal studies have further indicated that high acute doses have caused reversible damage to the thyroid as well as damage to the blood, spleen, liver, kidney and lungs. Since it is rapidly absorbed and rapidly eliminated from the body, there are no identified chronic or cumulative adverse effects.

108-95-2 Phenol

Can cause central nervous system effects. Signs and symptoms may include headache, dizziness, nausea, vomiting, motor difficulties and unconsciousness.

Delayed Hazards

64-17-5 Ethanol

Ingestion may cause liver damage.
-- See Footnote

108-95-2 Phenol

Can cause liver and kidney damage. Signs and symptoms of chronic poisoning may include vomiting, difficulty in swallowing, diarrhea, lack of appetite, jaundice, fatigue, bleeding or easy bruising and sometimes pain and swelling in the upper right abdomen, changes in urine output or dark urine, pain upon urination or in the lower back, or general edema. Can also cause cardiac damage evidenced by shortness of breath and in severe cases cardiac arrest. Preexisting medical conditions of the heart, kidney, liver, lung, eyes and skin may be aggravated by exposure.
-- See Footnote

Footnote: As of the date of issuance of this document, this material has not been listed by NTP, classified by IARC nor regulated by OSHA as a carcinogen.

4. First Aid Measures

- INGESTION:** If accidentally swallowed, dilute by drinking large quantities of water. If the individual is drowsy or unconscious, do not give anything by mouth. Immediately contact poison control center or hospital emergency room for advice on whether to induce vomiting or for any other additional treatment directions.
- INHALATION:** Remove to fresh air.
- SKIN:** In case of irritation, flush with water.
- EYES:** Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to ensure water contact with entire surface of eyes and lids. Call a physician.
-

5. Fire Fighting Measures

| | |
|--------------------------|---|
| Flash point | 67 °C (153 °F) Pensky-Martens Closed Cup ASTM D 93 |
| Lower explosion limit | Not available |
| Upper explosion limit | Not available |
| Autoignition temperature | Not available |

COMBUSTIBLE. Keep away from heat and flame.

In case of fire, use water spray, dry chemical, foam or CO₂. Use water to keep fire-exposed containers cool.

6. Accidental Release Measures

Eliminate all ignition sources. Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. For large spills, use water spray to disperse vapors and flush spill area. Prevent runoff from entering waterways or sewers. Use appropriate Personal Protective Equipment (PPE).

7. Handling and Storage

7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipment (PPE).

- INHALATION:** Avoid prolonged or repeated breathing of vapor.
- SKIN:** Avoid prolonged or repeated contact with skin and clothing.
- EYES:** Do not get in eyes.
-

7.2 Storage

Keep container closed.

Store in a cool, dry place.

Not harmed by freezing. If frozen, resin should be thawed slowly at room temperature and agitated thoroughly before use.

Storage life is 9 months at 70°F, less at higher temperatures.

8. Exposure Controls/Personal Protection

8.1 Exposure Controls

ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.

8.2 Personal Protection

Where air contaminants can exceed acceptable criteria, use NIOSH (42 CFR Part 84) approved respiratory protection equipment. Respirators should be selected based on the form and concentration of contaminants in air in accordance with OSHA laws and regulations or other applicable standards or guidelines, including ANSI standards regarding respiratory protection. Use goggles if contact is likely. Wear impervious gloves as required to prevent skin contact.

8.3 Exposure Guidelines

| 108-95-2 | | Phenol | | | |
|-----------------|------------------|-------------------|-------------------------|---|--|
| ACGIH TLV | 8-hr TWA | 5 ppm | 19 mg/m ³ | Skin | |
| OSHA PEL | 8-hr TWA | 5 ppm | 19 mg/m ³ | Skin | |
| 64-17-5 | | Ethanol | | | |
| ACGIH TLV | 8-hr TWA | 1,000 ppm | 1,880 mg/m ³ | | |
| OSHA PEL | | 1,000 ppm | 1,900 mg/m ³ | | |
| 108-46-3 | | Resorcinol | | | |
| ACGIH TLV | 8-hr TWA | 10 ppm | 45 mg/m ³ | | |
| | STEL (15 min) | 20 ppm | 90 mg/m ³ | | |
| OSHA PEL | None Established | | | | |
| | Remanded TWA | 10 ppm | 45 mg/m ³ | 1989 PEL remanded, but in effect in some states | |
| | Remanded STEL | 20 ppm | 90 mg/m ³ | | |

9. Physical and Chemical Properties

| | |
|-------------------------------------|---------------------------------|
| Appearance | Clear, reddish-brown liquid |
| Odor | Slight alcoholic |
| Odor threshold | Not available |
| Specific gravity | Approx. 1.1571 |
| pH | 9.1 - 9.6 @25 °C (77 °F) |
| Viscosity | 1,150 - 1,400 cPs Brookfield |
| Freezing point | Less than 0 °C (32 °F) |
| Solubility in water | Slightly |
| Octanol/water partition coefficient | Not available |
| Vapor pressure | Approx. 50 mm Hg @25 °C (77 °F) |
| Vapor density | Not available |
| Evaporation rate | Approx. 0.6 (Butyl Acetate = 1) |
| Boiling point, 760 mm Hg | Approx. 102 °C (216 °F) |

10. Stability and Reactivity

Normally stable, but will polymerize at high temperatures with some evolution of heat.

Incompatibilities:

Oxidizers, acids

Decomposition products may include:

CO, CO₂, aldehydes (including formaldehyde), particulate matter and other organic compounds.

Hazardous polymerization:

May occur.

11. Toxicological Information

INGESTION: A similar product was found to have an LD₅₀ >0.5 g/kg when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

INHALATION: A similar product was found to be non-toxic by inhalation when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN ABSORPTION: A similar product was found to be non-toxic dermally when tested as described in 16 CFR Part 1500.3 (c)(1) and (2).

SKIN: A similar product was not a primary irritant (primary skin irritation index less than 5.0/8.0) when tested as described in 16 CFR Part 1500.41.

EYES: A similar product was severely irritating when tested as described in 16 CFR Part 1500.42.

108-95-2 Phenol

LC₅₀: rat=0.316 mg/l (RTECS)

LD₅₀: Oral-rat= 414 mg/kg (Sax); Skin-rabbit= 850 mg/kg (Sax)

64-17-5 Ethanol

LC₅₀: rat=20,000 mg/l/10 h (Sax)

LD₅₀: Oral-rat= 7,060 mg/kg (Sax)

108-46-3 Resorcinol

LC₅₀: Not available

LD₅₀: Oral-rat= 301 mg/kg (Sax); Skin-rabbit= 3,360 mg/kg (Sax)

12. Ecological Information

Not determined

13. Disposal Considerations

Recover free liquid. Absorb residue and dispose of according to local, state/provincial, and federal requirements. Empty container: May contain explosive vapors. DO NOT cut, puncture or weld on or nearby.

14. Transport Information

14.1 U.S. Department of Transportation (DOT)

The data provided in this section is for information only and may not be specific to your package size. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

| | |
|-----------------------------|--------------------------------------|
| Proper shipping name | COMBUSTIBLE LIQUID, N.O.S. (Ethanol) |
| UN/NA number | 1993 |
| Class | N/A |
| Packing group | III |
| Label | |
| RQ Ingredients | Phenol |

14.2 Canadian Transportation of Dangerous Goods (TDG)

Regulation: Non regulated

15. Regulatory Information (Selected Regulations)

15.1 U.S. Federal Regulations

OSHA Hazards Communication Standard 29CFR1910.1200

This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

SARA Title III: Section 311/312

Reactivity hazard
 Immediate health hazard
 Delayed health hazard
 Fire hazard

SARA Title III: Section 313 and 40 CFR Part 372

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

| | | |
|--------|----------|-------|
| Phenol | 108-95-2 | 8.49% |
|--------|----------|-------|

TSCA Section 8(b) Inventory

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

15.2 Canadian Regulations

Workplace Hazardous Materials Information System (WHMIS)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all the information required by the CPR.

Class B3
Class D2B

Canadian Environmental Protection Act (CEPA)

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

National Pollutant Release Inventory (NPRI)

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subsection 16(1), National Pollutant Release Inventory.

| | | |
|------------------------|----------|-------|
| Phenol (and its salts) | 108-95-2 | 8.49% |
|------------------------|----------|-------|

15.3 State Regulations

Pennsylvania Worker & Community RTK Act (Pa. Act 1984-1159)

The listing of a chemical does not necessarily indicate it is hazardous.

| | |
|---|-------------|
| 1,3-Benzenediol | 108-46-3 |
| Formaldehyde, Polymer with 1,3-Benzenediol and Phenol, Sodium Salt | 147977-83-1 |
| Water | 7732-18-5 |
| Phenol | 108-95-2 |
| Ethyl Alcohol and Water | 64-17-5 |

16. Other Information

User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS) require that the information contained on these sheets be made available to your workers. Educate and train your workers regarding OSHA and WHMIS precautions. Instruct your workers to handle this product properly. Consult with appropriate experts to guard against hazards associated with use of this product and its ingredients.

Disclaimer

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE, except that the product shall conform to contracted specifications, and that the product does not infringe any valid United States or Canadian patent. No claim of any kind shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.



MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

DESCRIPTION: Cascoset® FM-6210S

1. Chemical Product and Company Identification

DESCRIPTION: **Cascoset® FM-6210S**
 PRODUCT CODE: 38-6210S-
 PRODUCT TYPE: Paraformaldehyde Catalyst
 APPLICATION: Beam Laminating

Manufacturer/Supplier Information

MSDS prepared by:
 Hexion Specialty Chemicals, Inc.
 155 West A Street, Bldg. A-1
 Springfield, OR
 97477

For Emergency Medical Assistance
 Call Health & Safety Information Services
 1-866-303-6949

For additional health and safety or regulatory information, call (541)744-3256.

2. Composition, Information on Ingredients

The ingredients listed below have been associated with one or more immediate and/or delayed(*) health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING, HANDLING, OR EXPOSURE TO THESE INGREDIENTS, READ AND UNDERSTAND THE MSDS.

| | | % by weight |
|-------------------|----------------------------------|--------------------|
| 30525-89-4 | *Paraformaldehyde | 50.0 - 70.0 |
| | Walnut Shell Flour | 10.0 - 30.0 |
| 7631-86-9 | *Silica | 10.0 - 30.0 |
| 1344-28-1 | Aluminum Oxide | 1.0 - 5.0 |
| 50-00-0 | **Formaldehyde | 1.0 - 5.0 |
| 77-92-9 | Citric Acid | 1.0 - 5.0 |
| 1309-48-4 | Magnesium Oxide | 1.0 - 5.0 |
| 14808-60-7 | *Quartz (SiO₂) | 0.1 - 1.0 |

Any applicable Canadian trade secret numbers will be listed in Section 15.2.

3. Hazards Identification

3.1 Emergency Overview

Appearance: Light brown powder
 Odor: Formaldehyde

WARNING!

FLAMMABLE SOLID. Combustible dust when finely divided or suspended in air.
 Will polymerize at high temperatures with some evolution of heat.
 Harmful if inhaled.

Causes chemical burns to eyes.
 May be harmful if absorbed through skin.
 Causes skin irritation.
 May cause allergic skin reaction.

NORTH AMERICAN EMERGENCY RESPONSE GUIDE, 2000, NO: 133

HMIS Rating

HEALTH = 3 (serious)
 FLAMMABILITY = 2 (moderate)
 REACTIVITY = 1 (slight)
 CHRONIC = *

3.2 Potential Health Effects

Immediate Hazards

INGESTION: Not expected to be harmful under normal conditions of use.
 If accidentally swallowed, burns or irritation to mucous membranes, esophagus or GI tract can result.

INHALATION: Harmful if inhaled.
 Can cause irritation of nose, throat and lungs.

SKIN: May be harmful if absorbed through skin. Causes irritation.

EYES: Causes chemical burns.

Delayed Hazards

14808-60-7 Quartz (SiO₂)

CANCER HAZARD. Can cause cancer. Use of this product may generate silica dust (which may be invisible). Inhaled silica has been listed by NTP and classified by IARC as a human carcinogen.

30525-89-4 Paraformaldehyde

May cause allergic skin reaction.
 -- See Footnote

50-00-0 Formaldehyde

May cause cancer. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29CFR 1910.1048. Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancer. The National Toxicology Program (NTP) has listed formaldehyde as a probable human carcinogen. The International Agency for Research on Cancer (IARC) has concluded formaldehyde is carcinogenic to humans.

Safe handling and use instructions are provided in this MSDS and in the OSHA Formaldehyde Workplace Standard at 29CFR1910.1048. OSHA has identified 0.5 ppm as the "Action Level". Please review and understand the guidance contained in this MSDS and refer to the OSHA Formaldehyde Standard for regulatory requirements that may be applicable to your operation and use.

For further information and a review of various studies, go to www.osha.gov/SLTC/formaldehyde, www.iarc.fr and other authoritative websites.

May cause allergic skin reaction. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that preexisting respiratory and skin disorders may be aggravated by exposure.

7631-86-9 Silica

Can cause lung fibrosis. Pre-existing respiratory disorders may be aggravated by exposure.
-- See Footnote

14808-60-7 Quartz (SiO₂)

CANCER HAZARD. Can cause cancer. Use of this product may generate silica dust (which may be invisible). Inhaled silica has been listed by NTP and classified by IARC as a human carcinogen.

Footnote: As of the date of issuance of this document, this material has not been listed by NTP, classified by IARC nor regulated by OSHA as a carcinogen.

4. First Aid Measures

- INGESTION:** If accidentally swallowed, dilute by drinking large quantities of water. If the individual is drowsy or unconscious, do not give anything by mouth. Immediately contact poison control center or hospital emergency room for advice on whether to induce vomiting or for any other additional treatment directions.
- INHALATION:** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
- SKIN:** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse.
- EYES:** Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to ensure water contact with entire surface of eyes and lids. Call a physician.

5. Fire Fighting Measures

| | |
|--------------------------|---|
| Flash point | 71 °C (160 °F) Pensky-Martens Closed Cup ASTM D 93 |
| Lower explosion limit | Not available |
| Upper explosion limit | Not available |
| Autoignition temperature | Not available |

FLAMMABLE SOLID. Keep away from heat, sparks, and flame. Refer to NFPA Pamphlet No. 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids," if this material is to be reduced to or collected as a powder.

In case of fire, use dry chemical, "alcohol" foam or CO₂; water may be ineffective, but should be used to keep fire-exposed containers cool.

6. Accidental Release Measures

Eliminate all ignition sources. Gently sweep (scoop) up to avoid creating dust clouds and remove to a chemical disposal area. Prevent entry into natural bodies of water.

7. Handling and Storage

7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipment (PPE).

| | |
|--------------------|--|
| INHALATION: | Do not breathe dust or vapor. Use with adequate ventilation. |
| SKIN: | Avoid contact with skin and clothing. |
| EYES: | Do not get in eyes. |

7.2 Storage

Keep container closed.

Store in a cool, dry place.

If exposure to moisture causes lumping, break lumps into powder before using.

Limited storage life - Refer to product specifications.

Reacts with many compounds. Reaction with phenol, acids, alkalis may be violent.

8. Exposure Controls/Personal Protection

8.1 Exposure Controls

ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.

8.2 Personal Protection

Where formaldehyde gas concentrations can exceed acceptable criteria, use NIOSH (42 CFR Part 84) approved full-facepiece respiratory protection equipment. Respirators should be selected based on the concentration of formaldehyde in air in accordance with the OSHA Formaldehyde Standard Respiratory Protection requirements at 29CFR 1910.1048 γ , and the OSHA Respiratory Protection Standard at 29CFR 1910.134 or other applicable standards or guidelines, including ANSI standards regarding respiratory protection. A full-facepiece respirator with cartridges or canisters specifically approved for formaldehyde may be used for exposure levels up to 7.5 ppm (10 times the PEL). Chemical safety goggles must be worn if there is a possibility of contact with liquid formaldehyde or excessive gas-phase exposures. A full-facepiece respirator complies with this requirement. Wear protective gloves as required to prevent skin contact. Protective gloves must be worn when handling formaldehyde solutions of 1% or higher. Consult your glove manufacturer for specific information on permeation, degradation and breakthrough data to ensure proper selection. Based on available information, butyl, nitrile and Viton appear to be quite impervious to various strengths of formaldehyde solutions. Other glove materials may be equally suitable depending on composition, thickness and use conditions. Where high concentrations of formaldehyde may be present, such as in an emergency, full body protection should be worn. Other protective equipment that must be available when handling formaldehyde solutions of 1% or higher include eye wash fountains and safety showers. Reusable protective clothing should be cleaned and ventilated after any formaldehyde contamination. See the OSHA Formaldehyde Standard requirements at 29CFR 1910.1048(h) Protective Equipment and Clothing and OSHA 29CFR 1910.1048(i) Hygiene Protection for other specific protective measures based on the form of formaldehyde, the conditions of use and the hazards to be prevented.

8.3 Exposure Guidelines

| | | | |
|------------------------------------|------------------|---|---|
| 30525-89-4 Paraformaldehyde | | | |
| ACGIH TLV | None established | | |
| OSHA PEL | None established | | |
| Walnut Shell Flour | | | |
| ACGIH TLV | 8-hr TWA | 3 mg/m ³ | respirable; Particles (Insoluble or Poorly Soluble) Not Otherwise Specified |
| | 8-hr TWA | 10 mg/m ³ | |
| OSHA PEL | None Established | | |
| 7631-86-9 Silica | | | |
| ACGIH TLV | 8-hr TWA | 10 mg/m ³ | (as amorphous silica) |
| OSHA PEL | 8-hr TWA | 80/(%SiO ₂) mg/m ³ | 20 mppcf; (as amorphous silica) |
| | Remanded TWA | 6 mg/m ³ | (as amorphous silica); 1989 PEL remanded, but in effect in some states |
| 1344-28-1 Aluminum Oxide | | | |
| ACGIH TLV | 8-hr TWA | 10 mg/m ³ | (containing no asbestos) inhalable particulate, < 1% crystalline silica |
| OSHA PEL | 8-hr TWA | 5 mg/m ³ | respirable particulate |
| | 8-hr TWA | 15 mg/m ³ | total dust |
| | Remanded TWA | 5 mg/m ³ | respirable particulate; 1989 PEL remanded, but in effect in some states |

| | | | | |
|-------------------|--------------------------------------|-------------------|---|---|
| 50-00-0 | Remanded TWA Formaldehyde | | 10 mg/m ³ | total dust |
| ACGIH TLV | Ceiling | 0.3 ppm | 0.37 mg/m ³ | A2 - Suspected Human Carcinogen; SEN |
| OSHA PEL | 8-hr TWA STEL (15 min) | 0.75 ppm 2 ppm | 0.9 mg/m ³ 2.5 mg/m ³ | |
| 77-92-9 | Citric Acid | | | |
| ACGIH TLV | 8-hr TWA | | 10 mg/m ³ | inhalable; Particles (Insoluble or Poorly Soluble) Not Otherwise Specified |
| OSHA PEL | 8-hr TWA 8-hr TWA | | 5 mg/m ³ 15 mg/m ³ | respirable particulate total dust |
| 1309-48-4 | Magnesium Oxide | | | |
| ACGIH TLV | 8-hr TWA | | 10 mg/m ³ | Fume; Inhalable fraction |
| OSHA PEL | 8-hr TWA Remanded TWA | | 15 mg/m ³ 10 mg/m ³ | Fume; total particulate total particulate; Fume; 1989 PEL remanded, but in effect in some states |
| 14808-60-7 | Quartz (SiO₂) | | | |
| ACGIH TLV | 8-hr TWA | | 0.05 mg/m ³ | respirable fraction; A2 - Suspected Human Carcinogen |
| OSHA PEL | 8-hr TWA 8-hr TWA Remanded TWA | | 10/(%SiO ₂ +2) mg/m ³ 30/(%SiO ₂ +2) mg/m ³ 0.1 mg/m ³ | respirable dust total dust respirable dust; 1989 PEL remanded, but in effect in some states |
| NIOSH | 8-hr TWA | | 0.05 mg/m ³ | Respirable; Refer to NIOSH publications including Criteria Document for Crystalline Silica |

9. Physical and Chemical Properties

| | |
|-------------------------------------|--------------------|
| Appearance | Light brown powder |
| Odor | Formaldehyde |
| Odor threshold | Not available |
| Specific gravity | Approx. 0.7 |
| pH | 4.0 - 4.3 |
| Freezing point | Not applicable |
| Solubility in water | Not available |
| Octanol/water partition coefficient | Not available |
| Vapor pressure | Not applicable |
| Vapor density | Not applicable |
| Evaporation rate | Not applicable |
| Boiling point, 760 mm Hg | Not applicable |

10. Stability and Reactivity

Normally stable, but will polymerize at high temperatures with some evolution of heat. In common with most organic materials, this product should be treated as a combustible dust in the finely divided and suspended state.

Decomposition products may include:

CO, CO₂, aldehydes (including formaldehyde), particulate matter and other organic compounds.

Hazardous polymerization:

Will not occur.

11. Toxicological Information

See Section 3 Hazards Identification information.

30525-89-4 Paraformaldehyde

LC50: Not available

LD50: Oral-rat= 800 mg/kg (Sax)

Walnut Shell Flour

LC50: Not available

LD50: Not available

7631-86-9 Silica

LC50: Not available

LD50: Oral-rat= 3,160 mg/kg (RTECS)

1344-28-1 Aluminum Oxide

LC50: Not available

LD50: Not available

50-00-0 Formaldehyde

LC50: rat=0.59 mg/l (Sax)

LD50: Oral-rat= 800 mg/kg (Merck); Skin-rabbit= 270 mg/kg (Sax)

77-92-9 Citric Acid

LC50: Not available

LD50: Oral-rat= 3,000 mg/kg (Sax)

1309-48-4 Magnesium Oxide

LC50: Not available

LD50: Not available

14808-60-7 Quartz (SiO₂)

LC50: Not available

LD50: Not available

12. Ecological Information

Not determined

13. Disposal Considerations

Dispose of according to local, state/provincial, and federal requirements. Empty container: May contain explosive vapors. DO NOT cut, puncture or weld on or nearby.

14. Transport Information

14.1 U.S. Department of Transportation (DOT)

The data provided in this section is for information only and may not be specific to your package size. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

| | |
|-----------------------------|--------------------------|
| Proper shipping name | PARAFORMALDEHYDE MIXTURE |
| UN/NA number | 2213 |
| Class | 4.1 |
| Packing group | III |
| Label | 4.1 |

RQ Ingredients

Formaldehyde, Paraformaldehyde

14.2 Canadian Transportation of Dangerous Goods (TDG)

| | |
|-----------------------------|--------------------------|
| Proper shipping name | PARAFORMALDEHYDE MIXTURE |
| UN number: | 2213 |
| Class | Class 4.1 |
| Packing group | III |
| Label | 4.1 |

15. Regulatory Information (Selected Regulations)**15.1 U.S. Federal Regulations****OSHA Hazards Communication Standard 29CFR1910.1200**

This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

SARA Title III: Section 311/312

Immediate health hazard
 Delayed health hazard
 Fire hazard

SARA Title III: Section 313 and 40 CFR Part 372

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

| | | |
|--------------|---------|-------|
| Formaldehyde | 50-00-0 | 2.00% |
|--------------|---------|-------|

TSCA Section 8(b) Inventory

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

15.2 Canadian Regulations**Workplace Hazardous Materials Information System (WHMIS)**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all the information required by the CPR.

Class B4
 Class D1A
 Class D1B
 Class D2A
 Class D2B

Canadian Environmental Protection Act (CEPA)

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

National Pollutant Release Inventory (NPRI)

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subsection 16(1), National Pollutant Release Inventory.

| | | |
|--------------|---------|-------|
| Formaldehyde | 50-00-0 | 2.00% |
|--------------|---------|-------|

15.3 State Regulations

Pennsylvania Worker & Community RTK Act (Pa. Act 1984-1159)

The listing of a chemical does not necessarily indicate it is hazardous.

| | |
|--|------------|
| Formaldehyde | 50-00-0 |
| Aluminum Oxide (Al ₂ O ₃) | 1344-28-1 |
| Magnesium Oxide | 1309-48-4 |
| Walnut Shell Flour | |
| Paraformaldehyde | 30525-89-4 |
| Silica | 7631-86-9 |

16. Other Information

User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS) require that the information contained on these sheets be made available to your workers. Educate and train your workers regarding OSHA and WHMIS precautions. Instruct your workers to handle this product properly. Consult with appropriate experts to guard against hazards associated with use of this product and its ingredients.

Disclaimer

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE, except that the product shall conform to contracted specifications, and that the product does not infringe any valid United States or Canadian patent. No claim of any kind shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.