PRECISION SURFACES INTERNATIONAL, INC.
922 Ashland Houston, TX 77008-6734
713-426-2220 Fax: 713-426-2223

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Name:	Phenolic Powder, Phenolic Molding Compound, 2-Stage
Product Identifier:	PSI-200-5 PSI-200-20
	PSI-201-5 PSI-201-20
	PSI-202-5 PSI-202-20
Supplier:	Precision Surfaces International, Inc.
	922 Ashland, Houston, TX 77008-6734
Emergency Telephone:	Infotrac 800-535-5053
Recommended Use:	Thermoset plastic molding compound

SECTION 2: Hazard(s) Identification

Hazard Classification

Health
Serious Eye Damage/ Eye Irritation, Category 1
Germ Cell Mutagenicity, Category 2
Target Organ Toxicity (Repeated exposure), Category 2
Skin Sensitization, Category 1B

Signal Word
Danger

Pictograms

Hazard Statements
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H341: Suspected of causing genetic defects.
H373: May cause damage to organs through prolonged or repeated exposure.
HNOC: HAZARDS NOT OTHERWISE CLASSIFIED OR NOT COVERED BY GHS:
Organic dust can form highly explosive mixtures when finely suspended in air. Avoid dust-laden atmospheres; minimize dust generation and accumulation.

Precautionary Statements

Prevention
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.

P241: Use explosion-proof electrical and ventilating equipment.
P260: Do not breathe dust.
P264: Wash hands and forearms thoroughly after handling.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves, protective clothing, eye protection, and/or face protection.
P281: Use personal protective equipment (PPE) as required.

Response
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P314: Get medical advice/attention if you feel unwell.
P321: Specific treatment: Wash affected areas immediately with plenty of water and soap.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P337+P313: If eye irritation persists: Get medical advice/attention.
P362+P364: Take off contaminated clothing and wash it before reuse.

Storage
P405: Store locked up.

Disposal
P501: Dispose of contents and empty containers in accordance with local, regional, and federal regulations.

Emergency Overview

Immediate Concerns: Hazards Not Otherwise Classified (HNOC) or not covered by GHS
Organic dust can form highly explosive mixtures when finely suspended in air. Avoid dust-laden atmospheres; minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Dry powders can build up static electric charges when subjected to the friction of transfer and mixing operations. Implement adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Eliminate all sources of ignition, e.g. open flames, sparks or electrostatic discharge and use explosion proof motors. Ensure that all areas where explosions could occur are designated appropriately. For recommendations to prevent such explosions and associated damage, consult applicable guidelines such as NFPA 68, "Standard on Explosion Protection by Deflagration Venting", NFPA 69, "Standard on Explosion Prevention Systems" and/ or NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids". For more information refer to Section #7 of this SDS.

Potential Health Effects

Eyes
Contact may cause eye irritation or damage.

Skin
Contact may cause allergic skin reactions.

Skin Absorption
Skin absorption is unlikely to occur due to the physical form of the product.

Ingestion
May be harmful if swallowed.

Inhalation
Dust particles may cause respiratory tract irritation, coughing and wheezing.

Reproductive Toxicity

Reproductive Effects
Not known or believed to be a reproductive toxin.

Teratogenic Effects
Not known or believed to be teratogenic.

Carcinogenicity
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Mutagenicity
Phenol is a mutagen, which tested positive in in-vivo and in-vitro assays.

Medical Conditions Aggravated
Asthma, Respiratory disorders, Skin Allergies, and Eczema.

Routes of Entry
Inhalation, ingestion and through skin contact.

Target Organ Statement
Possibility of organ or organ system damage from prolonged exposure; target organs: heart, kidney, liver, skin, central nervous system (CNS), respiratory system. See Section 11 for details.

Irritancy
Dust particles have the potential to cause mechanical irritation of skin and eyes.

Sensitization
Contact may cause allergic skin reaction.

Comments
Refer to Section 11 for detailed information on health effects and symptoms.

AS SOLD the product is a plastic molding compound: A plastic resin (phenol-formaldehyde polymer) intimately mixed and reacted with one or more of a variety of organic and/or inorganic filling materials. When fully “cured” or reacted, the plastic resin is insoluble, infusible and binds the well- dispersed, embedded filling materials. However, "As Sold" the plastic resin is not completely "cured" or reacted and contains some unreacted ingredients dissolved within it. So dissolved, these chemicals are unlikely to pose a hazard; but because they are hazardous in their pure forms, OSHA requires that they be reported and described as hazardous ingredients. Under normal conditions of storage and handling, no significant amount of hazardous vapors should evolve from the "As Sold" product. Because phenol is more soluble in the resin than in water, there is no likely significant health hazard through skin absorption. The great majority of filling materials are embedded within compound granules that are large enough not to constitute an inhalation hazard. Nevertheless, some particles of plastic resin and/or filling materials may be present in a size that constitutes a respirable dust (including, in some products, up to 1% inorganic filling material mixed in after compounding). This respirable dust may contain one or more of the following materials: carbon black, coal dust, fibrous glass, graphite, mica, mineral wool fiber, talc, and/or wood flour (soft). Chronic inhalation of each of the above has been associated with fibrotic lung disease. For most or all, it has also been associated with increased risk of lung

cancer, especially among smokers. Inhalation of dust should be avoidable with proper material handling procedures and good ventilation, but if not, Personal Protective Equipment (PPE) should be worn. The primary acute health risk from exposure to the product "As Sold" is irritation, especially from the dust. Ingestion, inhalation of dust, and contact with skin and eyes should be avoided.

AS USED during polymerization (e.g., curing of the product during normal processing) or decomposition (e.g., overheating or burning of the product) small amounts of gaseous ammonia, phenol and formaldehyde (as well as water vapor, carbon monoxide and carbon dioxide) are evolved. Breathing of the fumes can be harmful. If the odor of ammonia or formaldehyde is noticeable, then the airborne concentration of these chemicals should be carefully monitored and ventilation improvements considered; these chemicals begin to be detectable by odor at concentrations approaching or exceeding the PEL. The odor of phenol begins to be noticeable at a concentration about one- fifth the PEL. In any case, adequacy of ventilation can best be determined by use of instruments to monitor airborne concentrations of ammonia, phenol and formaldehyde. Grinding or machining of cured molded material may create a dust that poses a respiratory hazard if inhaled (see above) and may release small amounts of gaseous ammonia.

SECTION 3: Composition/Information on Ingredients

Ingredient	C.A.S. No.	% by Weight
Phenol Formaldehyde Resin	9003-35-4	30 – 60
Hexamethylenetetramine	100-97-0	2 – 15
Phenol	108-95-2	< 3.5
Formaldehyde	50-00-0	< 0.1
Calcium Hydroxide	1305-62-0	0 – 10
Carbon Black	1333-86-4	0 – 12
Coal Dust		0 – 18
Graphite (natural)	7782-42-5	0 – 40
Kaolin	1332-58-7	0 – 40
Mica	12001-26-2	0 – 60
Talc	14807-96-6	0 – 20
Wood Flour		0 – 60

SECTION 4: First-aid Measures

Inhalation
Move person to non-contaminated area or outside of the building. If breathing proves difficult, seek immediate medical attention.

Skin Contact
Flush with large amounts of water for at least 10 minutes. Remove contaminated clothing. Seek medical attention if adverse effects occur

Eye Contact
Immediately flush eyes with copious amounts of water for at least 15 minutes while lifting the eyelids. Seek medical attention if irritation occurs.

Ingestion
If material is swallowed, seek immediately medical attention or advice. DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head below hips to prevent aspiration into lungs.

Signs and Symptoms of Overexposure

Eyes
Redness, burning sensation and tearing (watering) of the eyes.

Skin
Skin dryness or irritation.

Skin Absorption
Skin absorption is unlikely to occur due to the physical form of the material.

Ingestion
No effects known.

Inhalation
Harmful if inhaled. If breathing is affected, immediately move to fresh air. Seek medical attention if headache, dizziness or visual problems develop. Administer oxygen if breathing difficulty persists.

Acute Toxicity
None Expected.

Chronic Effects
None Expected.

Notes to Physician
If decomposition products are inhaled in a fire, symptoms may be delayed. The person exposed to fumes or decomposition products may need to be kept under medical surveillance.

SECTION 5: Fire-fighting Measures

Flammable Class
Not classifiable as a flammable material.

Flame Propagation or Burning Rate of Solids
Product does not sustain fire or propagate flames.

General Hazard
Avoid the generation or accumulation of dust as combustible particles can potentially form explosive mixtures with air.

Extinguishing Media
Dry Chemical, carbon dioxide (CO_2), alcohol resistant foam or water spray.

Hazardous Combustion Products
Phenol, formaldehyde, ammonia, carbon dioxide and carbon monoxide.

Explosion Hazards
Clouds of flammable particles suspended in air may form explosive mixtures. Avoid the generation of dust/ air mixtures and remove any sources of ignition, e.g. flames, sparks, flares or electrostatic discharge.

Sensitive to Static Discharge

Electrostatic discharge may trigger a dust explosion if sufficient quantities of combustible particles are suspended in air.

Sensitivity to Impact
Not Applicable

SECTION 6: Accidental Release Measures

Small Spill
With shovel and scoop, place material into clean, dry container; move containers from spill area. Minimize air-borne particulates. Use Personal Protective Equipment (PPE) to protect against inhalation of dust. Wear eye protection, gloves and avoid contact with skin.

Large Spill
Use the same methods described for small spills. Place material into appropriate containers for disposal.

Release Notes
Inform the relevant authorities if the product has been discharged into the environment, e.g. sewers, waterways, soil or air.

Special Protective Equipment
Not Established

SECTION 7: Handling and Storage

Handling
Use with adequate ventilation and utilize Personal Protection Equipment (PPE) if exposure limits are exceeded. Point source exhaust recommended to remove airborne dust particles during use. Avoid source of ignition, e. g. heat, flames or electrostatic charges and use explosion proof motors. Avoid contact with eyes and repeated or prolonged contact with skin. Wash hands thoroughly after handling. Keep away from food or drinking water.

Storage
Store in original unopened or closed packaging, ideally at temperature less than 86ºF (30ºC) and under humidity control.

Special Sensitivity
Like most organic compounds this product is sensitive to strong oxidizing agents and may either decompose or ignite when mixed with same.

Electrostatic Accumulation Hazard
Point source exhaust recommended to remove dust particles evolved during handling or processing. If dust is generated, use explosion proof motors and avoid sources of ignition, e. g. heat, flames, sparks or electrostatic discharges.

SECTION 8: Exposure Controls/Personal Protection

Exposure Guidelines

Ingredient	C.A.S. No.	Agency	Limit Type
Phenol	108-95-2	OSHA PEL	TWA: 5ppm; 19 mg/m^3
Phenol	108-95-2	ACGIH TLV	TWA: 5ppm; 19 mg/m^3

Phenol	108-95-2	Supplier OEL	TWA:NL ppm; NL mg/m^3 STEL: NL ppm; NL mg/m^3
Formaldehyde	50-00-0	OSHA PEL	TWA: 0.75 ppm STEL:2 ppm
Formaldehyde	50-00-0	Supplier OEL	TWA:NL ppm; NL mg/m^3 STEL: NL ppm; NL mg/m^3
Calcium Hydroxide	1305-62-0	OSHA PEL	TWA: 15T 5R mg/m^3
Calcium Hydroxide	1305-62-0	ACGIH TLV	TWA: 5 mg/m^3
Carbon Black	1333-86-4	OSHA PEL	TWA: 3.5 mg/m^3
Carbon Black	1333-86-4	ACGIH TLV	TWA: 3.5 mg/m^3
Coal Dust		OSHA PEL	TWA: 10 mg/m^3
Coal Dust		ACGIH TLV	TWA: 2 mg/m^3
Graphite (natural)	7782-42-5	OSHA PEL	TWA: 15cf ppm
Graphite (natural)	7782-42-5	ACGIH TLV	TWA: 2 mg/m^3
Kaolin	1332-58-7	OSHA PEL	TWA: 15 mg/m^3
Kaolin	1332-58-7	ACGIH TLV	TWA: 2 mg/m^3
Mica	12001-26-2	OSHA PEL	TWA: 20cf ppm
Mica	12001-26-2	ACGIH TLV	TWA: 3 mg/m^3
Talc	14807-96-6	OSHA PEL	TWA: 20cf ppm
Talc	14807-96-6	ACGIH TLV	TWA: 2 mg/m^3
Wood Flour		OSHA PEL	TWA: 15 mg/m^3
Wood Flour		ACGIH TLV	TWA: 5 mg/m^3

Engineering Controls
If the handling or processing of the resin generates dust, use ventilation to keep exposure to airborne particles below the permissible exposure limits. Monitoring of the workplace atmosphere may be required to ensure the effectiveness of the engineering controls and/ or the necessity to utilize Personal Protection Equipment (PPE).

Personal Protective Equipment (PPE)

Eye/Face Protection
Safety glasses with side shields are recommended. Snug-fitting googles should be worn in dusty work environments.

Skin/Hand Protection
Wear protective clothing and chemical resistant gloves to prevent skin contact. Remove contaminated clothing immediately and wash thoroughly before reuse.

Respiratory Protection
If exposure limits are exceeded, use properly fitted respiratory protection equipment particularly selected for the prevailing conditions.

Protective Clothing
Work gloves and skin protection are recommended for the handling of this product. Launder contaminated work clothing separate from regular laundry.

Work Hygienic Practices
Maintain a clean work environment and practice good hygiene. Wash hands, face and forearms thoroughly after handling of this product, before eating or drinking and at the end of the work shift.

Other Use Precautions

Not Available

SECTION 9: Physical and Chemical Properties

Appearance:	Granular, nodular, pellet, or briquette
Odor:	Slight odor of phenol
pH:	Not Applicable
Flash Point and Method	Not Applicable
Boiling Point:	Not Applicable
Evaporation Rate:	Not Applicable
Flammable Limits (LEL):	Dust. 0.030 oz. per cubic foot
Flammable Limits (UEL):	No Data
Vapor Pressure:	Not Applicable
Vapor Density:	Not Applicable
Specific Gravity:	See technical data sheet
Solubility in Water:	Negligible
Thermal Decomposition:	Not Available
Percent volatile:	Not Applicable
Oxidizing Properties:	Not Applicable

SECTION 10: Stability and Reactivity

Reactivity
Stable

Chemical Stability
This product is stable under normal conditions of storage and use.

Conditions to avoid
Avoid storage at high temperatures or exposure to open flames.

Possibility of hazardous reactions
Hazardous polymerization should not occur. Like most organic compounds this product is sensitive to strong oxidizing agents and may either decompose or ignite when mixed with same.

Incompatibility
Avoid contact with strong oxidizers as this may lead to violent reactions.

Hazardous Decomposition Products
Vapors evolved during decomposition may contain phenol, formaldehyde, ammonia, carbon dioxide and carbon monoxide.

SECTION 11: Toxicological Information

Acute Toxicity

Name	Route	Species	Value
Phenol	Oral	Rat	LD50 317 mg/kg BW
Phenol	Dermal	Rabbit	LD50 630 mg/kg BW
Phenol	Inhalation	Rat (1 hour)	LC50 316 mg/m^3
Formaldehyde	Oral	Rat	LD50 800 mg/kg BW
Formaldehyde	Dermal	Rabbit	LD50 270 mg/kg BW

Formaldehyde	Inhalation	Rat (1 hour)	578 mg/m^3
Calcium Hy7droxide	Oral	Rat	LD50 7340 mg/kg

Dermal LD50: > 5000 mg/ kg bodyweight (rabbit)
Notes: Mixture - Acute Toxicity Estimate (ATE)
Oral LD50: > 5000 mg/ kg bodyweight (rat)
Notes: Mixture - Acute Toxicity Estimate (ATE)
Inhalation LC50: No data available.
Eye Effects: Contact may cause severe eye irritation or damage.
Chronic: Prolonged or repeated exposure may lead to chronic effects. Target organs: heart, liver, kidney, central nervous system (CNS), respiratory system.

Carcinogenicity

Name	NTP Statues	IARC Status	OSHA Status
Phenol	Not Available	Group 3: The agent is not classifiable as to its carcinogenicity in humans	Not Available
Formaldehyde	Known to be a human carcinogen	Group 1: carcinogenic to humans	Potential human carcinogen

Notes: Less than 0.1% formaldehyde present.
Repeated Dose Effects: No data available.
Irritation: Contact with this product may cause eye irritation.
Corrosivity: Not Applicable
Sensitization: May cause allergic skin reactions.
Reproductive Effects: None known.
Target Organs: Components of this product have the potential to cause organ damage (heart, liver, kidney, skin, central nervous system (CNS) and respiratory system) through prolonged and repeated exposure.
Teratogenic Effects: No effects known.
Mutagenicity: Phenol: Classified as a mutagen (Category 2).
Synergistic Materials: No specific data.
General Comments: This product may contain a small amount crystalline silica (quartz), as a natural occurring impurity in mineral. The mineral is encapsulated within the molding compound by resin. Significant exposure to free respirable quartz is not expected under normal conditions of use and processing of this product. Respirable quartz may be released by grinding, machining or abrading of this product. The NTP's Report on Carcinogens lists crystalline silica (respirable size) as a known human carcinogen. IARC concluded that there is sufficient evidence in humans for the carcinogenicity of inhaled (respirable) crystalline silica

SECTION 12: Ecological Information

Please contact the phone number listed on the first page of the SDS for additional ecological information on this material and/or its components.

SECTION 13: Disposal Considerations

Disposal methods
Dispose of in compliance with the local, regional, national, and international regulations.

Product Disposal
Avoid or minimize the generation of waste. Contact a licensed waste disposal contractor to manage the disposal of non-recyclable material.

SECTION 14: Transport Information

DOT (Department of Transportation)
Primary Hazard Class/Division: Not hazardous

AIR (ICAO/IATA)
Primary Hazard Class/Division: Not hazardous

SECTION 15: Regulatory Information

United States

SARA Title III (Superfund Amendments and Reauthorization Act)

EPCRA Section 313 Supplier Notification

Name	C.A.S. No	% by Weight
Phenol	108-95-2	< 3.5

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

Name	CERCLA RQ	% by Weight
Phenol	1,000	< 3.5
Formaldehyde	100	< 0.1

TSCA (Toxic Substance Control Act)

Name	C.A.S. No
Phenol Formaldehyde Resin	9003-35-4
Hexamethylenetetramine	100-97-0
Phenol	108-95-2
Formaldehyde	50-00-0
Calcium Hydroxide	1305-62-0
Carbon Black	1333-86-4
Graphite (natural)	7782-42-5
Kaolin	1332-58-7
Talc	14807-96-6

Clean Air Act

Name	C.A.S. No	% by Weight
Formaldehyde	50-00-0	< 0.1

California Proposition 65
California law requires the following statement to be included: "Contains a chemical (Formaldehyde) known to the State of California to cause cancer."

Name	% by Weight	Listed
Formaldehyde	< 0.1	Cancer
Carbon Black	0 – 12	Cancer
Wood Flour	0 – 60	Cancer

SECTION 16: Other Information

The above information and recommendation are believed to be accurate and reliable. However, no warranty, either expressed or implied, is made as to its accuracy or completeness and none is made as to fitness of this material for any purpose. The manufacturer or supplier shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.

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