

# Material Safety Data Sheet

Material Name: PENNCOAT® 221 RESIN GRAY

IDs:

## \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

Product Trade Name PENNCOAT 221 RESIN GRAY

### Manufacturer Information

Ergon Armor

(601) 933-3540

Corrosion Engineering

300 Stevens Drive, Suite 310

(800) 424-9300

Lester, PA 19113

## \*\*\* Section 2 - Composition / Information on Ingredients \*\*\*

CAS #	Component	Percent
28064-14-4	Phenol-formaldehyde polymer, glycidyl ether	70-90
26447-14-3	o-Cresol glycidyl ether	10-30
25068-38-6	Epoxy Resin	1-10
65997-90-7	Glass Flake	10-30

### Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Glycidol derivatives.

## \*\*\* Section 3 - Hazards Identification \*\*\*

### Emergency Overview:

WARNING!

MAY CAUSE EYE AND SKIN IRRITATION.

MAY CAUSE RESPIRATORY TRACT IRRITATION.

PROLONGED EXPOSURE TO HIGH VAPOR CONCENTRATIONS CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION INCLUDING HEADACHE, DIZZINESS, WEAKNESS, CONFUSION, NAUSEA, AND LOSS OF CONSCIOUSNESS.

MAY CAUSE ALLERGIC SKIN REACTION.

### Potential Health Effects:

#### Phenol-formaldehyde polymer, glycidyl ether

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be practically non-toxic if swallowed, inhaled or absorbed through the skin and slightly irritating to the eyes and skin. High vapor concentrations are irritating to the eyes and respiratory tract, and may result in central nervous system (CNS) effects such as headache, dizziness, nausea, drowsiness and, in severe exposures, loss of consciousness and death. Prolonged skin contact with very large amounts may cause drowsiness.

#### o-Cresol Glycidyl Ether

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Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, this material is considered to be practically non-toxic if swallowed or inhaled, no more than slightly toxic if absorbed through skin, slightly irritating to eyes and severely irritating to skin. Repeated contact with this material can cause an allergic skin reaction.

## Mica

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Exposure to dust may be slightly irritating to the eyes, skin and respiratory tract. Long-term overexposure to dust has caused adverse lung effects including a disabling pneumoconiosis with increased lung fibrosis, shortness of breath, cough and abnormal breathing. Workers with lung disease or limited respiratory capacity should limit exposure to this material.

## \* \* \* Section 4 - First Aid Measures \* \* \*

### Eye Contact:

Immediately flush with plenty of water. Get medical attention if irritation persists.

### If On Skin

Immediately flush with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

### Ingestion:

Induce vomiting as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

### Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

## \* \* \* Section 5 - Fire Fighting Measures \* \* \*

**Flash Point:** >212 deg F (100 C)

**Method Used:**

**Flammability  
Classification:**

**Upper Flammable  
Limit (UFL):** N/A

**Lower Flammable  
Limit (LFL):** N/A

### Fire & Explosion Hazards:

Closed containers of this material may explode when subjected to heat from surrounding fire. Cool exposed containers with water. Avoid breathing fumes from fire exposed material.

### Extinguishing Media:

Use water spray, carbon dioxide, foam or dry chemical.

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## Fire-Fighting Instructions:

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

### \*\*\* Section 6 - Accidental Release Measures \*\*\*

## Spill or Leak

Isolate hazard area and deny entry to unnecessary or unprotected personnel. Contain spilled liquid with sand or earth. Clean up spill immediately, observing precautions in the Personal Protection section of MSDS. Avoid runoff into storm sewers and ditches which lead to waterways.

### \*\*\* Section 7 - Handling and Storage \*\*\*

## Handling Procedures:

Do not get in eyes, on skin or clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Empty container may contain hazardous residues.

## Storage Procedures:

Avoid excessive heat. Store out of direct sunlight in a cool, well-ventilated place.

### \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

## Component Exposure Limits

The components of this product have no established exposure guidelines.

## Engineering Controls:

Investigate engineering techniques to reduce exposures below exposure limits. Provide ventilation if necessary to control exposure levels. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

## PERSONAL PROTECTIVE EQUIPMENT

As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

## Eyes/Face Protective Equipment:

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

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## Skin Protection:

Neoprene or Polyvinyl chloride gloves should be worn when handling this material. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Wash contaminated clothing and clean protective equipment before reuse. Rinse contaminated skin promptly. Wash skin thoroughly after handling.

## Respiratory Protection:

Avoid breathing vapor or mist. Use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure may be significant, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

## \* \* \* Section 9 - Physical & Chemical Properties \* \* \*

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	Gray, opaque, paste
<b>Odor:</b>	Mild	<b>Vapor Pressure:</b>	Nil
<b>Vapor Density:</b>	Heavier than air	<b>Boiling Point:</b>	N/E
<b>Melting Point:</b>	N/A	<b>Specific Gravity:</b>	1.19 @ 25/25 Deg C
<b>pH:</b>	N/A	<b>Viscosity:</b>	
<b>VOC:</b>		<b>Solubility Water:</b>	Insoluble

## \* \* \* Section 10 - Chemical Stability & Reactivity Information \* \* \*

### Chemical Stability:

This material is chemically stable under normal and anticipated storage and handling conditions.

### Incompatibility:

Avoid contact with strong acids, strong oxidizers and alkalis which may cause a violent reaction. Contact with amine compounds in uncontrolled conditions results in an exothermic reaction.

### Decomposition Products:

Oxides of carbon

### Hazardous Polymerization:

Hazardous polymerization is not known to occur.

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## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute Toxicity:

#### A: General Product Information

No information available for the product.

#### B: Component Analysis - LD50/LC50

##### **Epoxy resin (25068-38-6)**

SL6475000:Phenol, 4,4"-isopropylidenedi-, polymer with 1-chloro-2,3-epoxypropane (10/1/97)

Oral LD50 Rat : 11400 mg/kg

Oral LD50 Mouse : 15600 mg/kg

Single exposure (acute) studies indicate that this material is practically non-toxic to rats if swallowed (LD50 4,000-21,000 mg/kg) or rabbits if absorbed through skin (LD50 23,700 mg/kg), no more than slightly toxic in rats if inhaled (LC50 >0.7 mg/l; no deaths at saturated atmosphere), and slightly irritating to rabbit skin and eyes. Human patch testing has shown that this material may produce skin sensitization. Occupational exposure has also been reported to result in allergic contact dermatitis and skin rashes. The health of workers in epoxy resin manufacturing facilities has been evaluated and indicates that pulmonary function was not affected by normal operating concentrations. Skin allergy was observed in guinea pigs following repeated exposures to this material. Subchronic feeding studies with this material in rats have not shown any adverse effects up to concentrations of 3% in the diet. Topical application of this material to the skin of mice has not produced an increase in skin tumors in several studies. Oral administration of this material to pregnant rats and rabbits for the majority of gestation resulted in some maternal toxicity, but no increase in birth defects or toxicity to the fetuses. A single generation reproduction study was conducted by oral administration of this material and did not show adverse effects on fertility, mating or reproductive success or any adverse effects on the offspring. This material has shown an ability to produce genetic changes in standard bacterial and mammalian cell assays. Increases in chromosomal aberrations have also been observed in mammalian cells in culture. Exposure of whole animals has not resulted in an increase in micronuclei in bone marrow cells or dominant lethal effects. Evaluation of cells from exposed workers has shown chromosomal aberrations in two studies, but a third study did not show this effect.

##### **o-Cresol glycidyl ether (26447-14-3)**

Inhalation LC50 Rat : 282 mg/m<sup>3</sup>

Inhalation LC50 Mouse : 310 mg/m<sup>3</sup>

Oral LD50 Rat : 5140 mg/kg

Oral LD50 Mouse: 1700 mg/kg

Single exposure (acute) studies indicate that this material is practically non-toxic to rats if swallowed (LD50 5,800 mg/kg), no more than slightly toxic to rats if absorbed through skin (LD50 >2,150 mg/kg), practically nontoxic to rats if inhaled (4-hr LC50 8.1 mg/l), slightly irritating to rabbit eyes, and severely irritating to rabbit skin (24-hr 5.2-7.1/8.0). Repeated exposure of humans to this material in controlled skin contact studies produced skin allergy. This material has produced genetic changes in standard tests using bacterial cells. Both positive and negative responses have been reported in tests using bacterial cells and negative responses in human cells.

##### **Phenol-formaldehyde polymer glycidyl ether**

Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD50 >5,000

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mg/kg), no more than slightly toxic if absorbed through skin (rabbit LD50 >2,000 mg/kg) or inhaled (rabbit 4-hr LC50 >1.7 mg/l), and slightly irritating to rabbit eyes and skin. Skin allergy was observed in guinea pigs following repeated exposure. Patch testing with human volunteers was moderately to severely irritating to the skin (10% solution), but no allergic skin reactions were observed.

## **Glass Flake**

Patch testing and dermal rubbing experiments indicate that mechanical irritation of the skin can occur, but allergic sensitization reactions are not likely. Numerous epidemiology studies of cancer and non-cancer mortality have been conducted on workers exposed in production of this material. Generally, radiographic changes in the lungs were not observed and measures of pulmonary function were not affected. No significant increases in cancer mortality or other chronic effects that are attributable to exposure to this material have been found. Both the International Agency for Research on Cancer (IARC) and the World Health Organization (WHO) have reviewed the human and animal data for carcinogenicity and concluded that there is inadequate evidence for carcinogenicity for this material in humans or animals. Fiberglass wool, which is primarily used for thermal and acoustic insulation, was classified by IARC as a possible human carcinogen based on inadequate evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals. Inhalation studies in rats, guinea pigs, rabbits, monkey and hamsters to high levels of this material have not shown increases in lung tumors or evidence for pulmonary fibrosis. Generally, the reaction of the lung to this exposure was that seen for nuisance dusts. Rats, exposed by intratracheal injection, have shown increases in lung tumors, but the artificial nature of this method and the high local lung loading make these studies less appropriate for evaluation of carcinogenic effects.

## **Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

## **Chronic Toxicity**

No information available for the product.

## **Epidemiology:**

No information available for the product.

## **Neurotoxicity:**

No information available for the product.

## **Mutagenicity:**

No information available for the product.

## **Teratogenicity:**

No information available for the product.

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## \*\*\* Section 12 - Ecological Information \*\*\*

### Ecotoxicity:

#### A: General Product Information

No information available for the product.

#### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

##### Epoxy resin

LC50 Rainbow trout: >1,000 mg/l, Practically Non-toxic

### Environmental Fate:

##### Epoxy resin

In a closed bottle test, this material was not readily biodegradable with only 2-3% of the Theoretical Oxygen Demand (ThOD) being consumed in 28 days and no inhibition of microbial activity.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### US EPA Waste Numbers & Descriptions:

#### A: General Product Information

Recover, reclaim or recycle when practical.

Disposal via incineration is recommended. Appropriate pretreatment and disposal in an authorized landfill is acceptable. In all cases, dispose of material in accordance with all applicable federal, state, and local laws and regulations. Consult appropriate regulatory officials or your attorney for information on such disposal.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

#### B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

## \*\*\* Section 14 - Transportation Information \*\*\*

### US DOT Information

Shipping Name: NOT regulated by DOT.

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## \*\*\* Section 15 - Regulatory Information \*\*\*

### US Federal Regulations

#### A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

#### B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312: Acute: Y Chronic: N Fire: N Pressure: N Reactive: N

### State Regulations

#### A: General Product Information

No additional information available.

#### B: Component Analysis – State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	M	N	NJ	PA
Epoxy Resin	25068-38-6	Yes	Yes	Yes	Yes	Yes	Yes	Yes

### Other Regulations

#### A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

#### B: Component Analysis – Inventory Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Epoxy resin	25068-38-6	Yes	Yes	Yes
o-Cresol glycidyl ether	26447-14-3	Yes	Yes	Yes
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Yes	Yes	Yes
Glass Flake	65997-90-7	Yes	Yes	Yes

#### C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Disclosure / Classifications
Epoxy resin	25068-38-6	1% / D2B
o-Cresol glycidyl ether	26447-14-3	Not listed
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Not listed
Glass Flake	65997-90-7	Not listed

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<b>*** Section 16 - Other Information ***</b>
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## Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Ergon Armor bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.