



SAFETY DATA SHEET (SDS)

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SDS No.: CWL-M101-AE
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29JAN2015

Section 1 Identification

Product Name: CenterLine® Fiber Reinforced Polymer (FRP) Components and Material

Synonyms:

- Insulators and machined components in the form of bushings, tubes, washers, sheets and solids.
- Solid material (tube, rod, or sheet) formed by impregnating a cloth with a thermoplastic resin.
- Phenolic polymer (e.g., micarta, phenolic) consisting of a lamination of cotton or linen impregnated with a cured phenol formaldehyde resin binder.
- Glass-reinforced polymer (e.g., fiberglass, G10) consisting of a glass woven fabric impregnated with a cured epoxy resin binder.

Recommended Use: These polymer composites are commonly used as electrical insulation to isolate electrical circuit components. While the materials are interchangeable for many such applications, they have different engineering properties, which would govern the specification of material type and grade.

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Section 2 Hazard(s) identification

During normal operation and usage, this solid material article does not present inhalation, ingestion, or chemical hazards.

When this article is machined or otherwise modified by the user, chips containing filaments and fine or tacky dusts may be created in quantities substantial enough to affect the functionality of machines and equipment and may be potentially hazardous if the exposure limits described in Section 3 are exceeded. Machining may also release trace amounts of unreacted polymer precursors as co-contaminants of the dust. Formaldehyde is an example of a precursor that is suspected to be of carcinogenic potential.

Section 3 Composition/information on ingredients

Where present, listed constituents exist as a solid. Concentration percent by weight (% WT) must not be interpreted as a specification for a particular product.

MATERIAL OR COMPONENT	CAS. NO.	EINECS NO.	% WT	OSHA-PEL ^a	ACGIH-TLV ^a
MAY CONTAIN THE FOLLOWING:					
- Phenolic Laminate -					
1. Cellulose fibers	9004-34-6	N/A ^b	Balance	5 mg/m ^{3c}	10 mg/m ^{3c}
2. Phenol formaldehyde resin	9003-35-4	N/A ^b	<15	5.0 ppm	5.0 ppm
- G10 Laminate -					
3. Glass wool filament	65997-17-3	266-046-0	Balance	5 mg/m ^{3c}	10 mg/m ^{3c}
4. Epoxy resin	25068-38-6	500-033-5	< 15	N/E ^d	N/E ^d
^a	Other national or regional values or measures of exposure may be required at the point of use.				
^b	N/A = Not applicable				
^c	Respirable dust				
^d	N/E = Not established				

Section 4 First-aid measures

Show this SDS to those administering medical attention or treatment.

Inhalation: If breathing has stopped, perform artificial respiration and obtain medical aid immediately. If persistent irritation, severe coughing, or breathing is difficult, provide fresh air and seek medical attention as soon as possible.

Skin: Cuts or abrasions should be treated promptly with thorough cleansing of the affected area. Wash the skin



using soap or mild detergent and water. Get medical attention if irritation or dermatitis develops and persists.

Eyes: Eye injuries from solid particles should receive immediate medical attention. Dust may be flushed from eyes immediately with large amounts of water, lifting the lower and upper lids occasionally; seek medical attention.

Ingestion: If the product or dust is swallowed, seek immediate medical attention or advice. Do not induce vomiting.

Section 5 Fire-fighting measures

Suitable extinguishing media: Same as for wood fire (water, carbon dioxide, dry chemical, foam, or sand).

Special Fire Fighting Procedures: Phenolic burns like wood, although it is dangerous and may burn hotter. Partially burned dust is especially hazardous if dispersed into the air. Remove burned or wet dust to an open area after fire is extinguished.

Unusual fire and explosion hazard: Dusts generated by mechanical or abrasive activities may be explosive if mixed in critical proportions with air in the presence of an ignition source.

Hazardous combustion products: Carbon dioxide, carbon monoxide, and other hazardous gases and volatiles may be generated.

Special protective equipment and precautions for fire-fighters: For a dust fire confined to a small area, use a respirator approved for toxic dusts and fumes.

Section 6 Accidental release measures

Clean-Up Procedures: Product in solid form may be picked up by hand or other means to be placed into a container. When cleaning dust, eliminate all sources of ignition and use methods that minimize the dispersion of dust such as a high efficiency particulate air (HEPA) vacuum, wet dust mop, or wet clean-up. Put recovered material in a suitable, covered, and labeled container.

Personal precautions, protective equipment and emergency procedures: Refer to Section 8.

Environmental precautions: Refer to Section 12.

Section 7 Handling and storage

Safe handling procedures: This product does not require special safety precautions for handling prior to installation. Installation and removal of the product may cause exposure to dusts and other materials or chemicals associated with the installation (work) environment. Operations such as grinding, cutting, sanding, and shearing may generate dusts or fumes which may require special handling procedures.

Hygienic Practices: Wash hands thoroughly after handling, and before eating or smoking. Smoking and consumption of food or beverages should be restricted from areas where hazardous dust or chemical may be present. Do not shake clothing, rags, or other items to remove dust. Dust should be removed by laundering or vacuuming (with appropriate filters) the clothing, rags, or other items.

Conditions for safe storage: Maintain good housekeeping to prevent exposure to materials and chemicals that may contaminate or impair the quality of the product.

Section 8 Exposure controls/personal protection

Control parameters: Refer to table in Section 3 for occupational exposure limit values. Limit values applicable to possible trace quantities of unreacted polymer precursor materials include:

MATERIAL OR COMPONENT	CAS. NO.	EINECS NO.	OSHA-PEL ^a	ACGIH-TLV ^a
1. Phenolic Resin	108-95-2	203-632-7	5.0 ppm	5.0 ppm
2. Formaldehyde	50-00-0	200-001-8	0.75 ppm	0.30 ppm

Appropriate engineering controls: When machining use adequate local (preferably) or general exhaust ventilation to ensure that concentrations of dusts or fumes do not exceed exposure limits. Keep workplace clean and dry. Train personnel to minimize exposure to hazards during installation and replacement of product. On a regular basis, verify condition and proper function of equipment in which the product will be installed.

Individual protection measures: For brief contact with dust, no precautions other than clean clothing are usually required. Use appropriate gloves for periods of longer exposure or to protect against physical hazards. Always wear safety glasses with side shields and appropriate hearing protection when grinding or cutting. Use an approved respirator, with the proper assigned protection factor, whenever airborne concentrations



of hazardous components exceed exposure limits listed in Section 3 or the table above. Workers should wash before meals and leaving work.

Section 9 Physical and chemical properties

Appearance	Solid with a light tan to reddish brown color (Phenolic) or yellow to green color (G10)
Odor:	Slight phenolic odor (Phenolic) or slight epoxy odor (G10)
Boiling point and range:	Not determined
Melting point:	Not determined
Flash point:	Not determined
Evaporation rate:	Not volatile
Flammability:	Treat as wood
Vapor pressure:	Not determined
Vapor density:	Not volatile
Density:	1.2-1.8 g/cm ³ (0.04-0.07 lb/in ³)
Solubility in water:	Insoluble

Note: These are typical values and do not constitute a specification.

Section 10 Stability and reactivity

Reactivity:	May react with strong acids and bases.
Chemical Stability:	Stable under normal use conditions
Possibility of hazardous reactions:	Contact of dust with strong oxidizers may cause fire or explosion.
Conditions to avoid:	Heating to temperatures above 230 C (450 F).
Incompatible materials:	Oxidizers, strong acids and bases.
Hazardous decomposition products:	Oxides of carbon and nitrogen, phenol, and formaldehyde if heated in excess of 300 C (570F).

Section 11 Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Under normal handling and use, exposure to product presents few health hazards. Dusts may cause mechanical irritation to eyes and skin resulting in itching and redness. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher dust exposures may cause difficulty breathing, congestion, and chest tightness.

Delayed and immediate effects and also chronic effects from short and long term exposure

Possible effects by route of exposure:

Inhalation:	Dust may cause nasal dryness, irritation, coughing, sneezing and sinusitis due to the mechanical reaction to the fibers. For most individuals, the irritation generally does not persist and the effect will subside after the worker is removed from the exposure. Repeated exposures (even below 5 mg/m ³) to certain dusts can produce allergic responses in some sensitive individuals.
Skin contact:	Formaldehyde and dust may evoke allergic contact dermatitis in sensitized individuals.
Skin absorption:	Not applicable for product in purchased form.
Eye contact:	Dust may cause temporary mechanical irritation or a burning sensation to the eyes.
Ingestion:	Ingestion of significant amounts of product is unlikely. If swallowed and person is conscious, give large quantities of water to drink. Get medical attention as soon as possible. Serious effects may occur if large amounts of dust are swallowed.

Numerical measures of toxicity

While no toxicity data is available for the composite solids, the following data has been determined for their constituents:

Cellulose:	LD ₅₀ , rat, oral >5,000 mg/kg.
Phenolic Resin:	LD ₅₀ , rat, oral >2,900 mg/kg. IARC lists phenol in Group 3 (not classifiable as to its carcinogenicity to humans.)
Formaldehyde:	LD _{Lo} , oral 70 mg/kg. The International Agency for Research on Cancer (IARC) lists formaldehyde as a Group 1 carcinogen (carcinogenic to humans).
Glass wool fiber:	LD _{Lo} , inhalation, 0.1 mg/m ³ . IARC lists glass wool in Group 3 (not classifiable as to its



Epoxy Resin: carcinogenicity to humans.)
LD_{Lo}, female rat, oral, 16 mg/kg.

Section 12 Ecological information

Not biodegradable. This product is not expected to present an environmental hazard. Avoid releasing dusts and fumes into the environment.

Section 13 Disposal considerations

As shipped, the product is not considered a hazardous waste and may be treated as general industrial solid waste if permitted by federal, state, and local disposal regulations.

Section 14 Transport information

UN number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group number: Not applicable
Environmental hazards: Not applicable
IMDG Code: Not applicable
Transport in bulk: Not applicable
Special precautions: No special requirements are necessary in transporting this product.

Section 15 Regulatory information

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Product Regulations (CPR) and the SDS contains all of the information required by the CPR.

The product is not classified as a health or environmental hazard under current legislation including Regulation (EC) No 1272/2008 and the Council Directives 67/548/EEC and 1999/45/EEC. No obligation exists to issue a safety data sheet according to REACH Art. 31.

Formaldehyde and phenol are on the list of toxic chemicals subject to the United States Environmental Protection Agency (EPA) Toxics Release Inventory (TRI) Program reporting requirements. However, should trace amounts of unreacted formaldehyde and phenol be released, the amounts would be far less than the de minimus levels of 0.1% and 1.0% respectively.

Hazardous Material Identification System (HMIS)

Health Hazard:	2
Flammability Hazard	1
Reactivity Hazard:	0
Maximum Personal Protection:	E

Section 16 Other information

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists
CAS = Chemical Abstracts Service (registry)
EINECS = European Inventory of Existing Commercial Chemical Substances
HMIS = Hazardous Materials Identification System
IARC = International Agency for Research on Cancer
IMDG = International Maritime Dangerous Goods
LD₅₀ = lethal dose (50 percent kill)
LD_{Lo} = lowest published lethal dose
OSHA = Occupational Safety and Health Administration
PEL = permissible exposure limit
TLV = threshold limit value
TWA = time weighted average
UN number = Designation assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.



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Components and Material**

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% WT = percent weight

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