

# SAFETY DATA SHEET

## NEMA Grades FR-4, FR-5



Current, Incorporated

### Section 1. Identification

**Product Name:** NEMA Grades FR-4, FR-5 / IPC4101E/21

**Manufacturer:** Current, Incorporated  
30 Tyler Street Extension  
East Haven, CT 06512

**Emergency Phone:** 203-469-1337  
877-436-6542 (Toll Free)

**Description:** Glass reinforced epoxy laminate

**Product Use:** Used in electronic applications. Electrical insulation material with fire retardant properties.

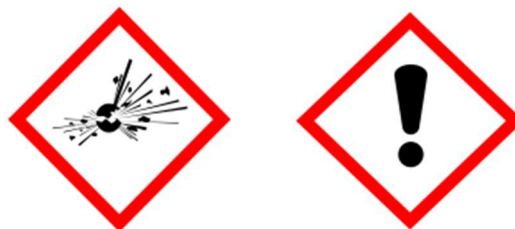
### Section 2. Hazard Identification

**GHS Classification:** This material, as sold, is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200  
**Dust and fumes generated during machining/sanding of this material is classified as hazardous per OSHA standards.**

**GHS Signal Words with Hazard and Precautionary Statements: Warning!**

Dust generated during machining, grinding or sanding may cause eye irritation.  
Fumes from decomposition or burning may irritate eyes, nose and respiratory system.  
Dust generated by secondary operations can be explosive.  
Avoid eye exposure to dust and fumes.  
Avoid skin exposure to dust and fumes.

**GHS Pictograms:** **Warning!** This product may form combustible dust during processing.



**Route of Entry:** None for this product as sold. For dust or chips generated during fabrication operations: eye contact, skin contact, and inhalation.

**Skin Contact:** Solid sheet may be abrasive to, or cut the skin. Operations such as milling, cutting, grinding, etc. may produce dust or fines that may be irritating.

**Eye Contact:** No hazard for product as sold. Operations such as milling, cutting, grinding, etc. may produce dust or fines that may be irritating.

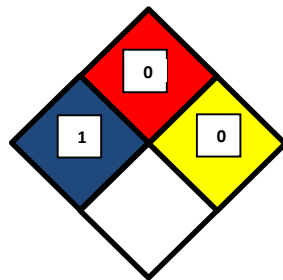
**Respiratory Contact:** Not an expected route of entry as sold. Operations such as milling, cutting, grinding, etc. may produce dust or fines that may be irritating. Prolonged exposure to dust may cause chronic respiratory illness.

**Ingestion:** Not an expected route of entry as sold. If large amounts of dust are swallowed, seek medical attention.

**HMIS (United States)**

Health 1  
Flammability 0  
Reactivity 0  
PPE B

**NFPA (United States)**



**WHMIS (Canada):** Not classified as hazardous

**Section 3. Composition / Information on Ingredients**

Fully cured solid composite of epoxy/glass:

Name	CAS #
Fiberglass	65997-17-3
Epoxy resin	25036-25-3

**Section 4. First – Aid Measures**

For dust or fumes produced by machining, grinding or sanding:

**Skin:** Wash skin with soap and water. If redness or itching develops seek medical attention.

**Eye:** Flush with large amounts of cool water for 15 minutes. If irritation persists, seek medical attention.

**Respiratory:** Remove to fresh air. Call a physician if necessary.

**Ingestion:** If large amounts of dust are swallowed, Do Not Induce Vomiting. Get medical attention immediately.

## Section 5. Fire-Fighting Measures

<b>Flammability:</b>	Not Flammable under normal conditions. Flash Pt.: N/A, Class: Solid
<b>Extinguishing Media:</b>	Water, foam, carbon dioxide or dry chemical
<b>Special Fire and Explosion Hazard:</b>	None as sold. (Accumulated dust may be explosive. Heat from fire can generate decomposition products that may cause a health hazard.)
<b>Special Firefighting Procedures:</b>	Fire fighters should wear positive-pressure self-contained breathing apparatus (SCUBA) and protective clothing.

## Section 6. Accidental Release Measures

### Personal Precautions, Protective Equipment and Emergency Procedures:

Material is non-hazardous as sold.

**Environmental Precautions:** None

**Spills:** Material is solid as sold. Contain and manage dust during secondary operations. Sweep up accumulated dust using water spray to suppress. Eliminate all ignition sources.

## Section 7. Handling and Storage

**Handling Precautions:** No specific usage precautions required as sold. Follow normal good hygiene practices.

**Storage Precautions:** Store in a cool, dry well-ventilated area.

## Section 8. Exposure Controls / Personal Protection

Machining, cutting, or grinding of fiberglass based epoxy resin produces respirable dust regulated by OSHA as noted below. Respirable fiberglass dust may cause cancer.

### Component Information

### Exposure limits

Component Name	CAS #	TLV, TWA, ACGIH	OSHA PEL, TWA
Fiberglass	65997-17-3	10 mg/m <sup>3</sup> (dust)	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable)
Epoxy Resin	25036-25-3	10mg/m <sup>3</sup> (dust)	10 mg/m <sup>3</sup> (dust)

**Eye Protection:** Minimize dust generating activities. Wear safety goggles. Do not wear contact lenses.

**Skin Protection:** Wear gloves to protect from sharp edges and protective clothing.

**Respiratory Protection:** If personal exposure cannot be controlled by ventilation, wear a particulate respirator approved by NIOSH/MSHA to protect against dust.

**Other:** Emergency eye wash stations should be available if cutting or producing dust.

## Section 9. Physical and Chemical Properties

<b>Appearance:</b>	Light green	<b>Lower Explosion Limit:</b>	Not Available
<b>Odor:</b>	Odorless Solid	<b>Upper Explosion Limit:</b>	Not Available
<b>Odor Threshold:</b>	Not Applicable	<b>Vapor Pressure:</b>	Not Applicable
<b>pH:</b>	Not Applicable	<b>Vapor Density:</b>	Not Applicable
<b>Melting Point:</b>	Not Available	<b>Relative Density:</b>	Not Available
<b>Freezing Point:</b>	Not Applicable	<b>Solubility:</b>	Not Soluble
<b>Boiling Point and Range:</b>	Not Applicable	<b>Auto-Ignition Temperature:</b>	Not Available
<b>Flash Point and Method:</b>	Not Applicable	<b>Decomposition Temperature:</b>	Not Available
<b>Evaporation Rate:</b>	Not Applicable	<b>Viscosity:</b>	Not Applicable
<b>Flammability:</b>	Not Flammable	<b>Specific Gravity;</b>	~ 1.6
<b>Partition Coefficient (n-Octanol / Water):</b>	Not Applicable		

## Section 10. Stability and Reactivity

<b>Reactivity:</b>	Product is non-reactive
<b>Chemical Stability:</b>	Stable
<b>Possibility of Hazardous Reactions:</b>	Thermal decomposition may produce oxides of carbon.
<b>Conditions to Avoid:</b>	Protect from heat, sparks and flame
<b>Materials to Avoid:</b>	Avoid contact with strong acids and bases.
<b>Hazardous Decomposition Products:</b>	Carbon dioxide, carbon monoxide, bromine and other hazardous gases may be generated under normal processing conditions.
<b>Hazardous Polymerization:</b>	Will not occur.

## Section 11. Toxicological Information

<b>Component</b>	<b>Oral LD<sub>50</sub> (rat)</b>	<b>Dermal LD<sub>50</sub> (rabbit)</b>	<b>Inhalation LC<sub>50</sub> 4hr (rat)</b>
Glass Fiber:	Not Determined	Not Determined	Not Determined

## Section 12. Ecological Information

As sold, this material is not classified as hazardous.

This material is not biodegradable.

Particulates generated during machining may be subject to Federal and State air pollution control laws.

## Section 13. Disposal Considerations

### Disposal Methods:

This material (as sold) is not classified as hazardous waste. Dispose of only by methods approved by and used in accordance with local, state and federal regulations for non-hazardous waste.

Particulates generated during machining and fabrication operations may be subject to Federal and State Air Pollution Control Laws.

## Section 14. Transport Information

**This product, as offered for shipment, is not regulated as a Hazardous Material.**

<b>UN Number:</b>	Not Applicable
<b>UN Proper Shipping Name:</b>	Not Applicable
<b>Transport Hazard Class:</b>	Not Applicable
<b>DOT Classification:</b>	Not Applicable
<b>Special Provision for Transport:</b>	Not Applicable
<b>IMDG Code:</b>	Not Applicable. Not expected to be a marine pollutant
<b>Transport Canada:</b>	Not Applicable.

## Section 15. Regulatory Information

### OSHA Hazard Communication Standard:

This product is considered non-hazardous under OSHA Hazard Communication Standard (29CFR 1910.1200)

### California (Proposition 65):

No components exceeding levels listed in "No significant Risk Levels" (NSRLs) for carcinogens or "Maximum Allowable Doses Levels (MADLs), as established in regulation title 27, California code of regulations.

### Superfund Amendments and Reauthorization Act of 1986 Title III:

This product is not a hazardous chemical under 29CFR 1910.12000, and therefore is not covered by Title III of SARA.

### Toxic Substance Control Act (TSCA):

All components of this product are on the TSCA inventory or are exempt from TSCA inventory requirements.

### HMIS Codes:

Health	1
Flammability	0
Reactivity	0
PPE	B

## Section 16. Other Information

**Revision Information:** Revision 2 (May 22, 2015), Complete, to comply with HCS Standard 29 CFR 1910.1200(g). Update to new "SDS" format.

Additional information on this product may be obtained by calling 203-469-1337.

### Notice to Reader:

To the best of our knowledge, the information contained herein is accurate. However, this should not be accepted as a guarantee of accuracy without confirming tests at your own facility. The above named manufacturer assumes no liability for accuracy or completeness of the information contained herein. The data relates only to the material as supplied and does not relate to combinations with other materials or processes.

**End of SDS Document**