

Material Safety Data Sheet

Section One: Product and Manufacturer

Product: Epoxy Woven Fiberglass Copper Clad Laminate and Prepreg
Product Name: FR-4-86
Manufacturer's Address and Telephone: 55, Wei-Wong Street, Su-Lin City, Taipei County, Taiwan, R.O.C. Tel: +886-2-2680-6311
Emergency Telephone/Fax: +886-02-26806311 ext.775~778/Fax:+886-02-26807234

Section Two: Ingredient Identification

Prepreg product is composed of semi-cured resin (B-stage) and reinforced with E-glass fabric; Copper Clad Laminate is composed of fully cured (C-stage) prepreg and adhered with copper foil. Resin components include halogenated organic elements and other trace elements of volatile organic materials.

Mixture: Resin, E-Glass Fabric and Copper Foil

Chemical Property:		
Substance Name	Concentration(Percentage)	Substance Category(CAS No)
E-Glass Fabric	30~60%	14808-60-7
Copper Foil	10~30%	7440-50-8
Epoxy Resin	30~60%	67-64-1

Section Three: Hazardous Ingredient Identification

Most Important Harmful Effect	Healthy Harmful Effect: No harm to health
	Environmental Effect: NA
	Physical & Chemical harm: NA
	Special Harm: NA
Major Symptom: NA	
Article Harmful Category: NA	

Section Four: First Aid Measures

First aid measures for different ways of exposures: Inhalation: Immediately flush mouth and nose with large amounts of temperate water.
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Skin contact: Use compressed air to blow the skin and clothes. Wash skin thoroughly with water with mild soap.

Eye contact: Immediately use water to flush the eyes and seek medical attention.

First-Aid for accidental ingestion: Force to vomit, flush the mouth with water, and seek immediate medical attention..

Most Important Symptom and Harmful Effect: Sensitive reaction from skin contact with dusts; Skin cuts or bruises from careless trimming operation..

Protection to the First-Aid Personnel: N/A

Hints to the Medical Doctor: N/A

Section Five: Fire Fighting Measures

Proper Extinguishing Media: Water spray, dry chemical powder, or carbon dioxide.

Possible Special Harm during Fire Fighting: Inhalation of smoke from burning.

Special Fire Fighting Procedure: N/A

Special Protection Equipment for Fire Fighter: Wear full bunker gear including a positive pressure self-contained breathing apparatus in any close place.

Section Six: Accidental Release Measures

Personal Attention: Solid Substance, No Risk of Leakage

Environmental Attention: N/A

Clean Up Measure: N/A

Section Seven: Safe Handling and Storage

Holding: NA

Storage: (Prepreg) Packed: Room Temp.= $21 \pm 2^{\circ}\text{C}$, (30% RH ~ 50% RH) \rightarrow 90 days
(Laminate) Packed: Room Temp.= $21 \pm 2^{\circ}\text{C}$ \rightarrow 2 years

Section Eight: Special Protection

Engineering Control: NA

Control Parameter:

Average acceptable daily density for 8 hours/Average acceptable density for short period/Highest acceptable density: N/A

Biological Index: N/A

Personal Protection Equipment:

Respiratory Protection: Micro dusts and particles may come out from drilling, edge trimming, and cutting. Dust collection should be used during these processes, and operator should wear gauze mask to prevent inhalation.

Hand Protection: Wearing cotton gloves may help keep scraps from hurting personnel during handling..

Eye Protection: Not necessary, but wearing safety glasses or face shield when machining or sawing can help avoid dust contact during operation

Skin & Body Protection: NA

Hygiene Measure: NA

Section Nine: Physical and Chemical Properties

Substance Status: Solid	Shape: Pieces in flat rectangle pieces
Color: Light Yellow	Smell: N/A
PH Value: 6~7	Boiling Point/Range: N/A
Decomposition Temp.: N/A	Fire Flash Point: N/A °C Test Method: Open Cup Close Cup
Temperature of Spontaneous Combustion: N/A	Explosion Limit: N/A
Steam Pressure: N/A	Steam Density: N/A
Specific Gravity: 1.8~1.9	Dissolution: Not water soluble

Section Ten: Stability and Reactivity

Stability: Stable Under Room Temperature
Possible Harmful Reaction Under Special Condition: During combustion
Conditions to be avoided: Stored in temperature .higher than 21°C at RH more than 50% unpacked.
Incompatible Materials: Stay away from fire, strong acid、strong oxidizers, and related chemicals
Hazardous Decomposition: Hydrocarbon of variable compositions.

Section Eleven: Toxicological Information

Urgent Toxicity: NA
Partial Effect: NA
Sensitization: NA
Slow or Long Term Toxicity: NA
Special Effect: NA

Section Twelve: Ecological Information

Possible Environmental Effect/Environmental Flow : NA

Section Thirteen: Disposal Measures

Method of Disposal: Proper landfill after complete burning.

Section Fourteen: Transport Information

International Transportation Regulation : NA

United Nation Code : NA

Domestic Transportation : Laminate by Truck ; Prepreg by airtight refrigerated Truck.

Special Delivery measures and attention : Prepreg needs to be stored in the refrigerated truck with temp. 23°C ↓ , 85%RH ↓

Section Fifteen: Regulatory Information

Regulation Applied : NA

Section Sixteen: Other Information

Reference Document	NA	
Business Unit	Name : CCL Technical Dept., Electronic Materials Div. Nan Ya Plastics Corporation.	
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