

This MSDS is compatible with ISO 11014 – 1:2002 and conforms to ANSI standard Z400.1 – 2004. This SDS complies with REACH 1907/2006

Section 1: Company and Product Identification

1100 E Kimberly Ave
 Anaheim CA 92801

Safety Data Sheet Competent Person:
 Date Prepared: August 10, 2009

Emergency Phone: (602) 619-5040
 Information Phone Number (714) 459-4466

Doug Leys - dleys@parkelectro.com
DATE REVISED: February 3, 2009

Product Description: Epoxy impregnated fiberglass cloth, uncured or cured with copper cladding.

Products covered by this MSDS include:

Mercurywave™ 9350 Laminate	Mercurywave™ 9350 Prepreg		

PRODUCT USE: This product is limited for use as an electronic material substrate.

Section 2: Hazards Identification

REFERENCE FILE: "SECTION 2 GHS GUIDANCE DOCUMENT" FOR REQUIRED INFORMATION

GHS: (Globally Harmonized System for Classification and Labeling of Chemicals)

This product has been reviewed according to the GHS criteria and is not a pure chemical substance or mixture of chemical substances. This product, which meets the definition of an article, is outside the scope of the GHS.

OSHA: This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Normal storage and handling of rolled prepreg is not expected to present any health hazards to those handling it. However processing of this product can release dusts and vapors which then become airborne

The following section describes the possible consequences of exposure to the dusts and vapors associated with the processing of this material.

SIGNS AND SYMPTOMS OF EXPOSURE

Resin Dust and Fibers:

- | | | | |
|--|--|--------------------------------------|---|
| <input type="checkbox"/> Dizziness | <input type="checkbox"/> Coma | <input type="checkbox"/> Vomiting | <input type="checkbox"/> Rapid Breathing |
| <input type="checkbox"/> Nausea | <input checked="" type="checkbox"/> Coughing | <input type="checkbox"/> Chills | <input type="checkbox"/> Rapid Heart Rate |
| <input type="checkbox"/> Vision Impairment | <input type="checkbox"/> Headaches | <input type="checkbox"/> Fever | <input type="checkbox"/> Muscle Spasms |
| <input checked="" type="checkbox"/> Rash | <input checked="" type="checkbox"/> Itching | <input type="checkbox"/> Other _____ | |

Solvents:

- | | | | |
|---|--|--------------------------------------|---|
| <input checked="" type="checkbox"/> Dizziness | <input type="checkbox"/> Coma | <input type="checkbox"/> Vomiting | <input type="checkbox"/> Rapid Breathing |
| <input checked="" type="checkbox"/> Nausea | <input checked="" type="checkbox"/> Coughing | <input type="checkbox"/> Chills | <input type="checkbox"/> Rapid Heart Rate |
| <input type="checkbox"/> Vision Impairment | <input checked="" type="checkbox"/> Headaches | <input type="checkbox"/> Fever | <input type="checkbox"/> Muscle Spasms |
| <input type="checkbox"/> Rash | <input checked="" type="checkbox"/> Drowsiness | <input type="checkbox"/> Other _____ | |

MEDICAL CONDITIONS AGGRAVATED BY THIS MATERIAL

Individuals with skin sensitization, contact dermatitis, or asthma may experience reactions if exposed.

NOTE TO PHYSICIANS: None

Section 3: Composition/Information on Ingredients
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Chemical Name	CAS #	Wt. %	OSHA PEL	ACGIH TLV	EINECS/ELINCS	DANGER SYMBOL	RISK PHRASE	DSL
Proprietary Epoxy Resin	26265-08-7	40-70	NE	NE	---	NE	NE	N
Proprietary Cyanate Ester Resin	25722-66-1	5-50	NE	NE	---	NE	NE	N
Fibrous Glass Fabric	65997-17-3	24-60	15 mg/M ³	10 mg/M ³	266-046-0	NE	NE	Y
N,N-Dimethylformamide	68-12-2	<0.1	10 ppm	10 ppm	200-679-5	NE	20/21, 36, 61	Y
Acetone	67-64-1	Trace	1000 ppm	500 ppm	200-662-2	Xi, F	11,36,66,67	Y
Methyl Ethyl Ketone	78-93-3	Trace	200 ppm	200 ppm	201-159-0	Xi, F	11,36,66,37	Y
Copper	7440-50-8	0-85	NE	NE	---	NE	NE	--
Inert Filler	NA	0-30	Nuisance Dust	Nuisance Dust	---	NE	NE	--

NE= Not Established (3) Suggested TLV by manufacturer.

The Full List for all R phrases is shown in Section 16.

Technical Rule for Hazardous Substances (TRGS) 905

Section 2.3 of TRGS 905, (inorganic fiber dusts (excluding asbestos)), lists the criterion that determines whether a fiber is included in this regulation. 2.3 (1) states: This section applies to fibers with a length > 5µm, a diameter < 3 µm and a length-to-diameter ratio of > 3:1 (WHO Fibers).

The manufacturer of the Fiber Glass Fabric has confirmed that the diameter of the fiber glass is 6.35 µm. Based on this fiber diameter, the fiberglass in this material is exempt from the TRGS-905 regulation.

Section 4: First Aid Measures

	Eyes	Skin	Inhalation	Ingestion
Flush with running water for 15 minutes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Remove to fresh air	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administer oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seek immediate medical attention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seek medical attention if symptoms persist	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Induce vomiting				<input type="checkbox"/>
Administer carbon slurry or sodium bicarbonate				<input type="checkbox"/>
Other First Aid Measures:	_____ None _____			

NOTES TO PHYSICIAN: None

Section 5: Fire Fighting Measures

Flash Point NA °F

Lower Explosion Limit % NA %

Upper Explosion Limit % NA %

Extinguishing Media: NA

Foam Water CO₂

Halon Dry Chemical

NFPA 704 Ratings: Health Flammability Reactivity

1 1 0

Hazardous Products of Decomposition:

Nitrous Oxides

Carbon Monoxide

Vinyl Chloride

Sulfurous Oxides

Aldehydes

Hydrogen Cyanide

Various Acids

Hydrogen Bromide

Special Fire Fighting Procedures:

Fire fighting should only be performed by professionals trained and equipped to handle hazardous materials incidents.

Other Fire/Explosion Hazard Data:

Sudden releases of hot organic vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment containing these vapors, may result in ignitions without the presence of an obvious ignition source. Therefore, published "auto ignition" or "ignition" temperature values cannot always be used as safe operating temperatures in chemical processes without proper analysis of the actual process conditions. As with all products, it is the responsibility of the user to thoroughly evaluate their process and to establish and maintain safe process parameters.

Section 6: Accidental Release Measures

Spill and Leak Procedures:

Spills or leaks are not expected to occur.

Personal Precautions:

Exposure control measures for responding to releases is the same as those found in Section 8 for handling.

Precautions to Protect The Environment:

Not Applicable.

Methods For Collection:

Not Applicable.

Section 7: Handling and Storage

Storage and Handling:

Rolls of prepreg can be very heavy. Safe handling requires the use of automated material handling equipment. Protective gloves should be worn when handling sheets of prepreg materials.

Waste Disposal:

Always follow all local, state, and federal regulations when disposing of waste materials.

Specific Uses:

This product is intended for use as a pre-preg substrate.

Section 8: Exposure Controls / Personal Protection

Although the following control measures will control atmospheric contamination in most manufacturing processes, it is your responsibility as the user of this product to determine the atmospheric concentrations of the various contaminants at your worksite and take whatever additional precautions may be necessary to keep the concentrations below the established exposure limits.

Ventilation:

- Area, general - This is important during the sheeting and lamination processes.
- Local - Use engineering controls such as enclosures, exhaust ventilation, and dust collection systems wherever possible to keep airborne concentrations of vapors, dust fibers below established exposure limits.

Personal Protective Equipment Required:

- Gloves and/or sleeves
Prepreg materials contain ingredients which can cause skin sensitization. Gloves and/or sleeves may be required by workers with sensitive skin or contact dermatitis. It is recommended that any skin area that may come in regular contact with this material be protected with gloves, sleeves or other appropriate barrier material at all times.
- Apron
Although usually not required, it should be noted that fibers or dust from the material may irritate the skin due to mechanical action of fibers. Individuals sensitive to these fibers should wear an apron.
- Respiratory Protection
Respiratory protection may be required to prevent overexposure to both the dusts and vapors. Refer to the chemical ingredients section and follow appropriate industrial hygiene practices to determine if the levels of contaminants are high enough to require respiratory protection.
- Eye Protection
Although not a corrosive material, fibers and trace amounts of severe eye irritants are present in this prepreg material. Depending on the level of dust and vapors generated while processing the material, safety glasses, or goggles should be worn at all times.

Section 9: Physical and Chemical Properties

GHS LIST OF PHYSICAL PARAMETERS FOR PRODUCT:	PRODUCT CRITERIA
PH	Not Available for product
FLASH POINT:	Not Available for product
FLAMMABILITY (Solid, gas)	Not Available for product
EXPLOSIVE PROPERTIES	Not Available for product
OXIDIZING PROPERTIES	Not Available for product
SPECIFIC GRAVITY (@25°C):	1.5
EVAPORATION RATE:	Not Available for product
% VOLATILE by VOLUME	<1.0
PARTITION COEFFICIENT	Not Available for product
BOILING POINT:	Not Available for product
MELTING POINT:	130-250 °F
VAPOR PRESSURE	Not Available for product
VAPOR DENSITY (AIR = 1)	Not Available for product
SOLUBILITY IN WATER:	Not Available for product
WATER SOLUBILITY IN THE SOLVENT	Not Available for product
FREEZING POINT:	Not Available for product
VISCOSITY	Not Available for product

Color Neutral

Odor

Ketone

Other Physical or Chemical Properties: None

Section 10: Stability and Reactivity

Reactivity: Stable Reactive

Physical Hazards: Pyrophoric Explosive Compressed Gas
 Oxidizer Water Reactive Other: _____

Avoid contact with:

Strong Acids Strong Bases Oxidizers Flammable Liquids
 Water Most Metals Oils and Greases
 Other Excessive Temperatures _____

Hazardous Polymerization:

Will Occur Will not occur

Hazardous polymerization of B-staged prepreg will not occur under normal storage and handling conditions. However, like all resinous materials, if processed under extreme conditions, (extreme heat rise or cure temperature, excessive mass to surface area ratio during curing) resin materials such as this product are capable of undergoing hazardous polymerization which results in exothermic decomposition. The products of this decomposition are listed in the fire and explosion data section.

As with all products, it is the responsibility of the user to thoroughly evaluate their process and to establish and maintain safe process parameters. Refer to the following section as an initial guide.

Process Conditions to Avoid:

- 1.) Extreme heat rise conditions.
- 2.) Cure temperatures in excess on 180° C.
- 3.) Excessive mass to surface area ratio (very thick laminate) during curing

Section 11: Toxicological Information

There is no toxicological information available for the product or mixture.

GHS Required Criteria

Acute Toxicity	LD50 Oral Rat	2737 mg/kg		MEK
	LC50 Inhalation mouse	32 g/m3 4H		MEK
	LDLo Oral Human	714 mg/kg		MEK
	TDLo Oral Rat	7 g/kg		Acetone
	TDLo Oral Rat	15 mL/Kg 3D-I		Acetone
	LD Oral Rat	>5 g/kg		
	LD Intraperitoneal Mouse	>5 g/kg		
Skin Corrosion/Irritation	Skin Rabbit	14 mg 24 H	Mild	MEK
Serious Eye Damage / Eye Irritation	Eye Rabbit	80 mg		MEK
	Eye Rabbit	10 uL	Mild	Acetone
	Eye human	186300 ppm	Mild	Acetone
Respiratory or Skin Sensitization		No information is available		
Germ Cell Mutagenicity	Sex chromosome loss Saccharomyces cerevisiae	33800 ppm		MEK
	Chromosome loss Inhalation Mouse	12 g/L		Acetone
Carcinogenicity		Not listed	NTP	
		Not listed	IARC	
		Not listed	OSHA	
Reproductive Toxicity		No information is available		
STOST -- Single Exposure		No information is available		

STOST – Repeated Exposure	No information is available		
Aspiration Hazard	No information is available		

STOST = Specific Target Organ Systemic Toxicity

OTHER DATA: MEK

OEL-AUSTRALIA: TWA 150 ppm (445 mg/m ³), STEL 300 ppm, JAN1993 OEL-BELGIUM: TWA 200 ppm (590 mg/m ³), STEL 300 ppm (885 mg/m ³), JAN1993 OEL-FINLAND: STEL 100 ppm, JAN1993 OEL-FRANCE: VME 200 ppm (600 mg/m ³), JAN1999 OEL-HUNGARY: TWA 200 mg/m ³ , STEL 600 mg/m ³ , JAN1993 OEL-INDIA: TWA 200 ppm (590 mg/m ³), STEL 300 ppm (885 mg/m ³), JAN1993 OEL-THE NETHERLANDS: MAC-TGG 590 mg/m ³ , Skin, 2003 OEL-NORWAY: TWA 75 ppm (220 mg/m ³), JAN1999 OEL-THE PHILIPPINES: TWA 200 ppm (590 mg/m ³), JAN1993 OEL-POLAND: MAC(TWA) 200 mg/m ³ , MAC(STEL) 850 mg/m ³ , JAN1999 OEL-RUSSIA: TWA 200 mg/m ³ , STEL 400 mg/m ³ , JUN2003 OEL-SWEDEN: NGV 50 ppm (150 mg/m ³), KTV 100 ppm (300 mg/m ³), JAN1999 OEL-SWITZERLAND: MAK-W 200 ppm (590 mg/m ³), KZG-V 400 ppm (1180 mg/m ³) JAN1999 OEL-TURKEY: TWA 200 ppm (590 mg/m ³), JAN1993 OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV OEL-DENMARK: TWA 50 ppm (145 mg/m ³), OCT 2002 OEL-EC: TWA 600 mg/m ³ (200 ppm); STEL 900 mg/m ³ (300 ppm), FEB 2006 OEL-GERMANY: MAK 600 mg/m ³ (200 mL/m ³), 2005 OEL-UNITED KINGDOM: TWA 200 ppm (600 mg/m ³); STEL 300 ppm (skin), 2005	
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OTHER DATA: Acetone

OEL-AUSTRALIA: TWA 500 ppm (1185 mg/m ³), STEL 1000 ppm, JAN1993 OEL-BELGIUM: TWA 750 ppm (1780 mg/m ³), STEL 1000 ppm, JAN1993 OEL-FINLAND: TWA 500 ppm (1200 mg/m ³), STEL 625 ppm (1500 mg/m ³), JAN1993 OEL-FRANCE: VME 750 ppm (1800 mg/m ³), JAN1999 OEL-HUNGARY: TWA 600 mg/m ³ , STEL 1200 mg/m ³ , JAN1993 OEL-THE NETHERLANDS: MAC-TGG 1780 mg/m ³ , 2003 OEL-JAPAN: OEL 200 ppm (470 mg/m ³), JAN1999 OEL-NORWAY: TWA 125 ppm (295 mg/m ³), JAN1999 OEL-THE PHILIPPINES: TWA 1000 ppm (2400 mg/m ³), JAN1993 OEL-POLAND: MAC(TWA) 600 mg/m ³ , MAC(STEL) 1800 mg/m ³ , JAN1999 OEL-RUSSIA: TWA 200 mg/m ³ , STEL 800 mg/m ³ , JUN2003 OEL-SWEDEN: NGV 250 ppm (600 mg/m ³), KTV 500 ppm (1200 mg/m ³), JAN1999 OEL-SWITZERLAND: MAK-W 500 ppm (1200 mg/m ³), STEL 1000 ppm (2400 mg/m ³), JAN1999 OEL-TURKEY: TWA 1000 ppm (2400 mg/m ³), JAN1993 OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV; OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV OEL-DENMARK: TWA 250 ppm (600 mg/m ³), OCT 2002 OEL-EC: TWA 1210 mg/m ³ (500 ppm), FEB 2006 OEL-GERMANY: MAK 1200 mg/m ³ (500 mL/m ³), 2005 OEL-MEXICO: TWA 1000 ppm (2400 mg/m ³); STEL 1260 ppm (3000 mg/m ³), 2004 OEL-UNITED KINGDOM: TWA 500 ppm (1210 mg/m ³); STEL 1500 ppm, 2005	
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Section 12: Ecological Information

BIODEGRADATION:	No information is available.	
BIOACCUMULATION:	Octanol-water partition coefficient of less than 3.0. not expected to significantly bioaccumulate	Acetone
	This material is not expected to significantly bioaccumulate	MEK
ECO TOXICITY:	The LC50/96-hour values for fish are over 100 mg/l. This material is not expected to be toxic to aquatic life.	MEK
	Moderately toxic. 96 hour LC50 - Fathead minnows: 14.2 mg/L. 96 hour LC50 - Bluegill sunfish: 25 ppm. 96 hour LC50 - Rainbow trout: 20 ppm.	N' (3,4-Dichlorophenyl) Dimethyl urea
	LC50/96-hour values for fish are over 100 mg/l	Acetone
MOBILITY:	When released into the air, this material is expected to have a half-life between 1 and 10 days. When released into the water this material is expected to have a half-life between 10 and 30 days.	MEK

Section 13: Disposal Considerations

This product is not considered a hazardous waste in the United States. Always follow all local, state, and federal regulations when disposing of waste materials.

Section 14: Transport Information

DOT Road Shipment Information:

This product is considered non-hazardous by the U.S. Department of Transportation (49 CFR 172.101).

Ocean Shipment:

This product is considered non-hazardous by the IMDG.

Air Shipment Information:

This product is considered non-hazardous by IATA.

Section 15: Regulatory Information

LABEL FOR SUPPLY (EU):

Symbol:	Not required
R-Phrase:	Not required
S-Phrase:	Not required
Contains:	None

UNITED STATES

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), TITLE III, SECTION 313 SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372.

The toxic chemicals contained in this product are: Acetone and Methyl Ethyl Ketone.

Toxic Substances Control Act (TSCA)

All ingredients in this product are included on the TSCA inventory, or are exempted by the TSCA regulations.

SARA 311 Classification

ACUTE (Y) CHRONIC (Y) FIRE (N) REACTIVE (N) PRESSURE (N)

CANADA

WHMIS (Workers Hazardous Material Information System):

This MSDS/SDS will be non compliant 3 years after the issue date.

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

This product is not considered hazardous.

DSL (DOMESTIC SUBSTANCE LIST INVENTORY): Reference Section 3.

This product is considered an article and is exempt from the reporting requirements for the Domestic Substance List in accordance with subsection 3 of CEPA.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All reportable chemical substances are listed on the DSL or otherwise comply with CEPA new substances notification requirements.

NATIONAL POLLUTANT RELEASE INVENTORY (NPRI)

This product contains the following chemicals subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA), subsection 16 (1), NPRI.

Copper

Dimethylformamide

EUROPEAN UNION

RoHS CERTIFICATION: The Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS), EU Directive (2002/95/EC). We hereby certify that the hazardous substances regulated by the RoHS Directive 2002/95/EC are not used intentionally as ingredient(s) this product. This certification is valid only for this product. Packaging materials were not considered for this certification.

WGK Classification, Germany = 0 (Water Resources Act in Germany)

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: REACH 1907/2006; Directive 67/548/EEC, Directive 2001/59/EC, Directive 91/155/EC, and Directive 2001/58/EC.

EINECS: European Inventory of Existing Commercial Chemical Products.

ELINCS: European List of Notified Chemical Substances

Section 16: Other Information**Full Text:**

European Community Hazards Identification:

Risk Phrases:

R: 11 Highly flammable.
R: 36 Irritating to eyes.
R: 66 Repeated exposure may cause skin dryness or cracking.
R: 67 Vapors may cause drowsiness and dizziness.

Safety Phrases

S: (2-) Keep out of the reach of children.
S: 13 Keep away from food, drink and animal feeding stuffs.
S: 22 Do not breathe dust.
S: 23 Do not breathe gas/fumes/vapour/spray
S: 37 Wear suitable gloves.
S: 46 If swallowed, seek medical advice immediately and show this container or label.
S: 9 Keep container in a well-ventilated place.
S: 16 Keep away from sources of ignition - No smoking.
S: 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.

Danger Symbol(s): Xi Irritant
F Flammable

Revision Comments: Updated to comply with REACH and GHS regulations.

Revision Number: 1

Information Sources: RTECS

The information and recommendations contained in this Material Safety Data Sheet are supplied pursuant to the Occupational Safety and Health Administration's Hazard Communication Standard as promulgated under 29 CFR 1910.1200 and the United States Environmental Protection Agency's Supplier Notification Rule as promulgated under 40 CFR 372.45.

This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in the proper procedures of safe chemical handling. Nelco provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy.

No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose, or of any nature are made with respect to the product(s) or information contained in this Material Safety Data Sheet.

Chemical additions, processing or otherwise altering this material may make the safety information presented above incomplete, inaccurate or otherwise inappropriate.

The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user.

Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its use and disposal of this product comply with federal, state or provincial, and local laws. The buyer or user assumes all risks associated with the use, misuse or disposal of this product.

As new documented safety information becomes available, Nelco/Neltec will revise this Material Safety Data Sheet and forward an updated copy to all current customers.

The information listed above does not include all state, federal, and international regulations. The regulatory information supplied may change from time to time. It is the user's responsibility to keep advised of all applicable regulatory requirements.