Adhesive Prepregs for Composite Manufacturers, LLC

SG 4528-040CU-103V

LIGHTNING STRIKE PREPREG

DESCRIPTION

SG4528-040CU-103V is a heavy weight, conductive, surfacing film composed of a non-woven metallic copper mesh impregnated with a toughened epoxy resin plus an ultra-lightweight veil for outstanding surfacing capability. It is designed for lightning and shielding protection of aircraft, equipotential ground planes and as a counterpoise for antenna installations.

FEATURES

- ◊ Dual Co-cure capabilities between 250°F and 350°F, post curable to 350°F
- ◊ Epoxy formulation results in a tough outer shell with outstanding surfacing capabilities
- ◊ Extremely low volatile content contributes negligible surface porosity
- ◊ Excellent tack and handling properties for ease of lay-up
- ◊ Excellent environmental performance from -65°F to 300°F
- ◊ Compatible with a wide range of other epoxy prepreg systems
- ◊ Non-woven foil mesh qualified at most all composite aircraft manufacturers
- ◊ Capable of providing Zone 1A and Zone 2A direct effects lightning protection
- ◊ Provides a high degree of electromagnetic shielding for electric and magnetic fields associated with lightning and high powered radio frequency transmitters

PHYSICAL PROPERTIES

Form:	Modified epoxy impregnated non-woven mesh
Resin Weight:	.045 psf typical
Resin Color:	dark gray opaque
Volatiles:	Less than 1%
Metallic Mesh:	Copper,110 (C11000)
Metallic Mesh Weight:	.040 psf
Veil Thickness:	.003” typical
Veil Weight:	.002 psf
Prepreg weight:	.087 psf typical
Release Separators:	Paper release on veil side, polyethylene release on the Metal mesh side
Tack:	Medium
Gel time:	10-12 minutes at 250°F
Out Time:	30 days at 75° F
Shelf Life:	One year at 0° F Four months at 40° F
Availability:	Up to 36” width
No Veil Edge:	An optional 1” no veil edge is available for overlapping adjacent plies

ADHESIVE PREPREGS FOR COMPOSITES MANUFACTURERS
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APPLICATION

The purpose of this application procedure is to insure that the veil side of the prepreg is laid up so that it is the outer most ply of the part. The following procedure applies to a part laid up in a female mold.

1. Remove material from cold storage at least 20 hours prior to use to allow for stabilization at lay up temperature conditions. Keep the prepreg sealed to prevent moisture from condensing on the prepreg before removing from the plastic bag. If details are cut and replaced in cold storage, the prepreg must be placed in sealed containers. Shorter temperature stabilization times can be used with these details.
2. Cut the material to size, peel back part of the release paper, this will expose the veil side of the prepreg.
3. Apply the prepreg to the mold starting at one edge and proceed in a rolling motion and peeling away the release paper as the prepreg is applied to the mold.
4. Next using a semi-flexible roller squeegee, and starting in the center, proceed in a uniform manner to push out any air pockets toward the outer edges. Alternately, palm hand pressure can be used to increase resin tack and effect conformability.
5. Remove the polyethylene from the prepreg by peeling it back over itself minimizing lift off. It lift off occurs or if any air pockets are noticeable, place the poly liners back over the area and use the squeegee or hand pressure to workout the air pocket.
6. Visually determine the 1" no veil edge (coated copper mesh only is easily detected) on the next piece of prepreg to be laid up. Overlap the previous layer (which you just laid up) up by one inch. This will maintain electrical continuity between layers.
7. Use your standard debulking procedure for 10 minutes.
8. Continue the prepreg lay up.
9. Debulking after each 3 plies is recommended.

RECOMMENDED CURE

SG4528-040CU-103V is designed to cure between 250^{o}F and 350^{o}F. Cure at 250^{o}F takes place in one hour at 250^{o}F, however, cure times and temperatures can be extended to 90 minutes and post cures at 350^{o}F to achieve a higher Tg. Alternatively, a processing profile of 60-90 minutes at 350^{o}F can be used to affect a cure.

STORAGE

Store prepreg at 0^{o}F for maximum shelf life.

CLEAN UP

The prepreg resin can be removed from non-bonding areas with ketones or methylene chloride solvents. Be sure to follow all the material safety data sheet guidelines for the solvent to be used.

CAUTION

This material contains epoxy resins and amines, which may cause irritation to sensitive skin. Avoid contact with eyes or skin. If skin contact occurs, wash as soon as possible with soap and water. If contact with eyes occurs, flush with water for 15 minutes. Do not handle this material until the material safety data sheet has been read and understood. The user of this material is required to use the necessary protective equipment as directed by the applicable state and federal laws when handling, curing, and grinding this material.

IMPORTANT NOTICE

Information in this data sheet has been obtained under controlled laboratory conditions and is believed to be accurate. Properties listed are typical values and are not intended for use in preparing specifications. Actual values may vary. No warranty is expressed or implied for which APCM assumes legal responsibility. APCM cannot be responsible for misapplication or handling and use under conditions beyond its control and under no circumstances shall be liable for incidental or consequential damage resulting from handling or use of this material.

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