Product Datasheet

SP&S Specialty Polymers and Services

EpoPro® 190

1-Component , B-Stageable Adhesive & Coating

EpoPro® 190 is an amber thermosetting adhesive & coating that is excellent for bonding metals to themselves and other substrates. It is used to assemble laminated steel cores for motors and stators, to bond copper foil to B-staged epoxy composites during PCB manufacture, and for other rigid bonding applications. Once applied and allowed to air dry the adhesive coating will remain suitable for bonding for up to 3 months if protected from dust and other contaminants. The coating layers becomes liquid again when subject to heat and easily wets most surfaces. Because of the fluidity of the adhesive at curing temperatures the adhesive layers typically only has to be applied to one surface for full wetting and adhesion to develop.

EpoPro® 190 can also be used as a protective coating. When cured it forms is tough protective coating that seals, unitizes and insulates coils and electronic sub-assemblies. The coating is highly resistant to heat, moisture, and many types of chemical exposure.

Many variations on the standard EpoPro® 190 are possible including custom colors, modified viscosities, and other special properties. Please contact us to discuss your application if you think such a variant would be helpful for your application.

APPLICATIONS & BENEFITS:

- Exceptional Shear & peel strength
- Dried coating bondable for up to 3 months
- Heat, Chemical, & Radiation resistant
- Easy to Use One component formulation

HANDLING PROPERTIES	VALUE	TEST METHOD
Visual Appearance	Clear to Light Amber liquid	
Specific gravity – lbs. /gallon	7.2 – 7.6	ASTM E-201
Viscosity @ 25ºC	40 - 80 cps	ASTM D-2393
Percent Solids (non-volatile %)	21% ± 2%	
Base Chemistry	Epoxy – phenolic (phenoxy)	
Primary Solvents	Acetone & Methyl Ether Ketone (MEK)	
Flash Point	-14°C (6°F)	
VOC Content	246 g/L	SCAQMD rule 1168

Drying time: EpoPro 190L will air dry to a tack-free coating in about 10 – 15 minutes at room temperature. However for an optimum performance the dried coating should be air dried for 45 minutes at 93°C (200°F), or 30 minutes at 121°C (250°F) or 10 minutes at 149°C (300°F). This will drive off any remaining solvent and make the coating stable and resistant to mechanical damage until you are ready to bond the adhesive or finally cure the coating.

Curing Schedule: Cure for 30 – 60 minutes minimum at 177°C (350°F). For adhesive applications apply a bond-line pressure of approximately 75 psi. Ensure that the bond-lines have reached the curing temperature before starting to time the cure cycle.

PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	Amber	Visual
T-Peel Strength	>10 pli	ASTM D-1876
Lap Shear Strength (etched aluminum)		ASTM D-1002
at -55°C (-67°F)	5000 psi	
at 25°C (77°F)	5000 psi	
at 82°C (180°F)	3500 psi	
at 121°F (250°F)	1200 psi	
at 150°C (300°F)	300 psi	
Lap Shear Strength - Environmental Aging		ASTM D-1002
30 days in tap water at 25°C (77°F)	5000 psi	
30 days in 20% salt solution at 35°C (95°F)	5000 psi	
7 days in hydraulic oil at 25°C (77°F)	5000 psi	
7 days in aromatic fuel at 25°C (77°F)	5000 psi	
Glass Transition Temperature (Tg)	95°C (203°F)	ASTM D-648
Coefficient of Thermal Expansion (CTE)		ASTM E-831
Alpha 1 (below Tg)	262 ppm/°C	
Alpha 2 (above Tg)	543 ppm/°C	

ELECTRICAL PROPERTIES	VALUE	TEST METHOD
Dielectric Constant at 1 kHz & 25°C (77°F)	5.2	ASTM D-150
Dissipation Factor at 1 kHz & 25°C (77°F)	0.11	ASTM D-150
Dielectric Strength at 1 mil thickness	2400 V/ mil	ASTM D-149
Volume Resistivity at 25°C (77°F)	>1.0 x 10^{15} ohm-cm	ASTM D-257

NOTE : Values above are based on laboratory or average production results – not for specification purposes. All properties generated on samples cured for 60 minutes at 350°F (177°C). Adhesive samples subject to 75 psi bond-line pressure applied using a platen press.

SUGGESTED PROCESSING GUIDELINES:

Apply by brush, roller, dipping or spraying. If spraying, the material may be thinned with small amounts of Acetone or MEK to produce a lower viscosity to lower application thickness, but this is seldom necessary. Typical application thickness is around 1 mil dry coating. For adhesive application apply 1 mil dry thickness to one surface or 0.5 mil thickness to each surface to be bonded. Coverage is typically about 300 sq. feet per gallon of the EpoPro® 190.

For best results ensure surfaces to be bonded are clean and lightly roughened. Surfaces that have had the adhesive applied and allowed to B-stage remain bondable for up to 3 months, but most be protected from dust, oil, and other contaminated. Wrapping or covering the surface in

unplasticized kraft paper is generally suitable to protect the surface from most contamination, and n pressure over the surface.

STORAGE GUIDELINES:

Store this material in a clean, cool and dry environment in its tightly closed original container. Keep from freezing and if frozen immediately warm to room temperature rather than allowing to remain frozen. Tightly reseal containers after use to prevent evaporation. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

HANDLING PRECAUTIONS:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE:

EpoPro® 190

WARNING: FLAMMABLE KEEP AWAY FROM OPEN FLAMES, SPARKS, AND HEAT. Avoid breezing vapors. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. May cause respiratory irritation and overexposure may cause nausea or light headiness. Use only with good mechanical ventilation and/or respirator. Do not take internally.

FIRST AID

In case of contact:

Skin – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

Eyes – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

Inhalation - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Ingestion - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER:

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