Product Datasheet

SP&S Specialty Polymers and Services

EpoPro 298A(Wen) / Hardener HY 1473

Epoxy Casting & Encapsulating System

EpoPro® 298A(WEN) resin with Hardener HY 1473 is a low viscosity, semi-flexible encapsulation and casting system that produces tough castings with very good thermal aging and impact resistance. This system is as an excellent general-purpose casting system, particularly where pressure-sensitive components are to be encapsulated or where thermal shock or crack resistance is required. The EpoPro 298A(WEN)/HY 1473 system has low shrinkage and good adhesion to most common materials including many rigid plastics.

Many variations on this system are available include custom colors, faster or slower cure speeds, adjustments to the viscosity or flow rate or the addition of specialty adhesion promoters to increase the bond strength to materials. Please contact us to discuss your application if you think a modified version might be needed for your application.

TYPICAL APPLICATIONS

- Flame Retardant
- Moisture & Chemical Resistant
- Excellent Dielectric Properties

HANDLING PROPERTIES

	VALUE	TEST METHOD
EpoPro 298A(Wen)		
Appearance	Blue liquid	
Density, g/cm³	1.38	ASTM E-201
Viscosity at 25ºC, cps	24,000	ASTM D-2393
Hardener HY 1473		
Appearance	Amber liquid	
Density, g/cm³	0.98	ASTM E-201
Viscosity at 25ºC, cps	1200	ASTM D-2393
Mix Ratio by Weight	100A:33B	Calculated
Mix Ratio by Volume	100A:53B*	Calculated
Viscosity Mixed at 25ºC, cps	4,000	ASTM D-2393
Viscosity Mixed at 40ºC, cps	1750	
Gel Time at 25ºC, 150g mass	25 - 40 minutes	ASTM D-2471

Recommended Cure Schedules: 24 hrs. at 25ºC **or** allow to gel (2-3 hrs at 25ºC) then heat cure for 4 hours at 65ºC **or** 2 hours at 80ºC **or** 1 hour at 95º-100ºC .

*Because the HY 1473 is a somewhat mix ratio insensitive hardener a mix ratio of 100A:50B by volume may be possible for some applications, but this should be evaluated thoroughly before use in production.

PHYSICAL PROPERTIES

	VALUE	TEST METHOD
Color	Blue	Visual
Density, g/cm³	1.50	ASTM E-201
Shore Hardness	82D	ASTM D-2240
Tensile Strength	2470 psi	ASTM D-638

Tensile Elongation at break	4.7%	ASTM D-638
Water Absorption, % by weight		
After 24 hours at 25ºC	0.24%	ASTM D-638
Glass Transition Temp. (Tg)	60ºC	by DSC
Thermal Conductivity	~0.40 W/mK	DIN 52 612
Shrinkage, in/in	<0.001	ASTM D-2566

ELECTRICAL PROPERTIES

	VALUE	TEST METHOD
Tracking Resistance	CTI > 600	IEC 112
Volume Resistivity at 25ºC,	$2.4x10^{14}$ ohm-cm	ASTM D-257
Dielectric Constant, at 60Hz	5.3	ASTM D-150
Dissipitation Factor @ 60Hz	0.063	ASTM D-150
Dielectric Constant, @ 1 MHz	4.6	ASTM D-150
Dissipitation Factor @ 60Hz	0.051	ASTM D-150

NOTE: Typical Properties determined using 4 hours at 65ºC heat cure. Values are based on laboratory testing and are not for specification purposes. Contact us for assistance in setting specification ranges.

SUGGESTED PROCESSING GUIDELINES:

EpoPro 298A (WEN)/HY 1473 is typically applied by pouring or dispensing into the parts to be potted. It is suitable for meter-mix dispensing and can be supplied in premixed and frozen syringes for small volume applications. The fillers in the EpoPro 298A(WEN) are non-abrasive (Moh Hardness of 3) and so only conventional pumping equipment is needed to meter-mix dispense this system and internal components that come in contact with the resin should not require frequent replacement.

For manual mixing, weigh resin and hardener in the recommended ratio into a clean mixing container. Always use weighing equipment having accuracy in proportion to the amounts being weighted – ideally the accuracy of the scale should be less than 1% of the mass being weighed. Blend by using a spatula or stirring stick for 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture.

For best adhesion apply to clean, dry surfaces. Allow the epoxy system to cure at room temperature for at least 24 hours before demolding or rough handling or allow to set at 25ºC for 3 hours then heat cure at 65ºC cure for at least 4 hours. For some small volume application, an immediate heat cures may be possible without allowing the material to first gel at room temperature However, allowing time for room temperature gelation will reduce shrinkage of the system, especially in larger masses, so this is highly recommended for stress-sensitive applications. More rapid cures are possible at higher temperatures. If you would like recommendation on alternate cure schedules, please contact us. Always evaluate a suggested cure schedule in your application prior to implementation in production the unique conditions of each application can affect the results achieved.

STORAGE GUIDELINES:

Store this material in a clean, cool and dry environment in its tightly closed original container between 15ºC – 40ºC. The EpoPro 298A(WEN) may settle or separate slightly during shipment or storage and should be re-mixed prior to use. Avoid extended exposure to high humidity.

Tightly re-seal after use. THE 298A(WEN) resin may also crystallize if exposed to temperature below about 15ºC for extended periods or to colder temperatures for short periods. Crystallization can appear as an increase in viscosity, as a semi-cured condition in the resin, or other odd consistency of the resin. Crystallization is generally reversible by heating the entire container of the 298A(WEN) to 50C for 4 hours) to melt the crystallized epoxy resin. Then allow the container to cool to room temperature and re-mixed to ensure the material is uniform before using. 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:

Review the latest SDSs for the Resin and Hardener and the GHS warning labels on the containers before use of these products.

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:

IMPORTANT: The following supercedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

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