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## AeroMarine Products Epoxy #300/11 Dielectric Potting Compound

AeroMarine Products Epoxy #300/11 is a high performance epoxy used primarily for potting and encapsulating electronic circuits. It is available either in black or clear amber. The black version is extremely popular for hiding proprietary circuitry. It is also used as a coating to provide a dielectric barrier.

### Features:

- Long work life
- Room temperature cure
- Low viscosity
- Simple, noncritical 1-1 mix ratio

**\*\*IF USING THE BLACK VERSION, YOU MUST TURN THE CONTAINER UPSIDE DOWN EVERY 7 DAYS TO MAINTAIN COLOR DISPERSION. SHAKE THE BLACK RESIN VIGOROUSLY FOR 2 MINUTES BEFORE USING!\*\***

### Specifications:

Viscosity:	3000cps maximum
Color:	Clear Amber or Black
Work life:	45-60 minutes@70F
Cure time:	24 hours@70F
Thermal Conductivity:	4.2 BTU/hr/ft <sup>2</sup> /°F/in.
Shear strength:	2500psi
Tensile Strength	8000 psi
Flexural strength:	12,800psi
Dielectric Constant	3.5 @ 1 KHz @ 23°C (73°F)
Volume Resistivity	4.1 x 10 <sup>14</sup> ohm-cm
Modulus of elasticity:	5.7 x 10 <sup>6</sup>
Dielectric Strength:	450 volts per mil (.001")

### Directions for use:

Mix the resin and hardener in equal parts by weight or volume. AeroMarine Products Epoxy #300/11 begins to gel in about 45 minutes, depending on the size of the batch and the temperature. Apply to clean dry surfaces. Cleaning with acetone, alcohol, or lacquer thinner is recommended. Sanding or abrading surfaces generally increases bond strength.



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## **Best practices when using epoxy resin**

**Never mix less than about 4 ounces of resin and hardener.** When manufacturers design and test their resins, they normally write the specifications for 100 gram batches, which is about 3 ounces. There are two bad things that can happen when mixing a smaller batch. If the sample is too small, it is much more difficult to get the mix ratio correct. These mixtures are exothermic, meaning that they generate heat in order to cure. A tiny batch does not generate enough heat to cure the resin properly.

**Do not mix the entire amount of resin and hardener together at once.** The larger the batch, the more exotherm or heat is generated in the cure cycle. Thickness of the pour also affects the exotherm and cure speed. 3/8" is about the maximum thickness to pour at one time for most epoxies.

**Don't vary the mix ratio.** Varying the mix ratio usually results in a mess. Too much hardener will cause the epoxy to turn to rubber. Too much resin will result in uncured sticky patches.

**Do NOT add more hardener in order to speed up the cure time.** More hardener ruins the mix ratio and makes the resin cure to rubber and stay that way! Use either a heat gun (NOT a blow dryer) or a floor heater to hasten the cure time.

**Mix and pour everything twice.**

**Mix in plastic containers.**

**Avoid mixing with drill motors.** Drill motors don't get into every corner of the mixing container. Drills spin too fast. They can generate friction in the resin causing it to exotherm out of control resulting in premature curing. Powered mixing can generate a lot of air bubbles which will result in a lot of extra work in the end.

**Storage- Epoxy resins tend to freeze even at fairly high temperatures, 70F.** If allowed to freeze, "epoxy ice" can form in the container. It usually looks like swirls of white stuff suspended in the resin. It can be reconstituted by warming at 120F for a couple of hours. Using frozen epoxy can cause areas of uncured epoxy as the "epoxy ice" will defrost in the heat generated by the exotherm.

**Spraying-** Do NOT Spray! Our epoxies are not made for spray applications.

**Clean-up-** We use aerosol carburetor cleaner to clean up spills and messes. We suggest using acetone, toluene, xylene, and lacquer thinner. *Avoid regular paint thinner (mineral spirits).* To clean hands, use a pumice hand cleaner available in often automotive supply stores.

**Thinning-** *Thinning* is not recommended for most applications. There are very few exceptions. The most acceptable use of a thinner is using epoxy to penetrate wood. In this case, no more than 10% is a good amount of thinner to use. Remember, thinners are flammable, so spread the epoxy promptly after thinning to keep the exothermic heat from building up. Use the same thinners listed in the Clean-up section above.

**Test-** Always make a test to determine the feasibility of your process. There are many unforeseen factors that can affect the outcome of your project. Running a controlled test may be inconvenient, but it can make the "Learning Curve" of processing these products much easier.



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