AeroMarine Products, Inc.
8659 Production Avenue
San Diego, CA 92121
(877) 342-8860
www.aeromarineproducts.com
info@aeromarineproducts.com

AeroMarine Cycloaliphatic "Non Blushing" Clear Epoxy #300/21

AeroMarine 300/21 is a clear, low viscosity cycloaliphatic epoxy system is primarily used for laminating, coating, and casting small objects. It contains no VOCs, and is relatively moisture insensitive.

Seven advantages of cycloaliphatic epoxies vs. conventional epoxies are:

- Resistance to amine blush
- Better sunlight and UV resistance
- Useable in damp conditions and high humidity
- Excellent gloss and clarity
- Excellent chemical resistance
- Cures well even at low temperature
- Less need for sanding between coats

Uses include:

- Laminating boats and aircraft using fiberglass, carbon fiber, or Kevlar cloth
- Casting small objects
- Building "stitch and glue" boats
- Potting electronic assemblies
- Potting specimens for measurement
- Coating wood and concrete
- Bonding and adhering wood, metal, concrete, and most plastics
- Flooring
- Pouring countertops and bartops

The mix ratio is a simple 2:1 by either weight or volume. AeroMarine 300/21 is a thin, clear liquid. It has a working life of about 30 minutes, and sets hard in a few hours.

Specifications:

Mixed viscosity:	600cps
Color:	Clear
Work life:	30 minutes@70F
Cure time:	24 hours@70F
Shore D Hardness	80-85
Shear strength:	2500 psi
Tensile Strength	10,500 psi
Flexural strength:	17,500 psi
Modulus of elasticity:	5.7×10^6 psi

Directions for use:

Mix 2 parts AeroMarine 300 Resin to 1 part AeroMarine 21 hardener. To avoid excess exotherm, mix small batches until you are familiar with using this material. If laminating with cloth, it is best to apply subsequent layers within 18 hours.

For industrial or professional use only

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Best practices when using epoxy resin

Never mix less than about 3 ounces of product. 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. Because the sample is small, it is much more difficult to get the mix ratio correct. Also, 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.

Avoid mixing a large batch- At least until you are familiar with the product. The larger the batch, the more exotherm or heat is generated in the cure cycle. If you are casting a large part, consider mixing small batches to make the process more manageable. Thickness of the pour also affects the exotherm and cure speed. 3/8" is about the maximum thickness to pour most epoxies.

Don't vary the mix ratio- Old style polyester resins were catalyzed with a chemical called MEKp. You could vary the mix ratio to get different reaction speeds. Modern epoxies, polyurethanes, and silicones are different. They don't use a true "catalyst", but have a different kind of reaction method. Varying the mix ratio usually results in a mess.

Consider mixing everything twice- especially if you are a beginner. Mix the two components together, then transfer the mixture to another container and mix them again. The theory is that the liquids clinging to the sides and bottom of the containers don't get mixed well. By transferring the mixture to another container, you are assured that everything is well mixed. Do not try to mix expanding foam twice because it begins to set in less than a minute.

Mix in plastic containers. Paper cups contain moisture which may adversely affect the resin, especially polyurethanes. Avoid waxed paper cups.

Avoid mixing with drill motors. Mixing with an electric drill can cause a few problems. Frequently they don't get into every corner of the mixing container. Also, if they spin too fast they can generate friction in the resin causing it to exotherm out of control resulting in premature curing. Powered mixing also can generate a lot of air bubbles.

Storage- Epoxy hardeners usually last forever. Epoxy resins, however, tend to freeze even at fairly high temperatures, sometimes into the fifty degree Fahrenheit range. 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- or you can use the "non-ice" part of the epoxy.

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Spraying- Epoxies don't spray well- they tend to run off vertical surfaces when sprayed. Addition of Cabosil will eliminate the run-off, but the epoxy turns a whitish color.

Clean-up- We use aerosol carburetor cleaner to clean up spills and messes. Otherwise just about any solvent will work, including acetone, MEK, toluene, xylene, and lacquer thinner. Avoid regular paint thinner (mineral spirits). To clean hands use "Fast Orange" hand cleaner available in automotive supply stores.

Thinning- Thinning is not recommended for most applications. There are very few exceptions. The most common acceptable use of a thinner is when using epoxy to penetrate wood. In this case about 10% is a good amount of thinner to use. Keep in mind that 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.