

Obtaining Consistent Results with Core Bonding Compound (CBC)

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Arjay's Core Bonding Compound (CBC) is used extensively in the composites industry for bonding a variety of core materials to FRP laminates. It also finds use as a lighter weight alternative to bonding FRP parts together – both large and small. Here are three tips which may help to obtain more consistent results when using this product.

Catalyzation

Getting prepared for a proper mix

Many CBC users apply one or more five gallon pails in a single application. The Arjay website contains a Catalyzation Guide for CBC which shows that, depending on temperature, from 134 to 301 cc's of catalyst will be required per pail. By far the most common way of measuring this is the ubiquitous plastic bottle with a graduate on top. The problem with this technique is that the graduate only holds about 30 cc's so multiple "shots" are required - as many as 10! Obviously, the worker runs the risk of miscounting when so many additions are required.



A better alternative is a small polypropylene measuring pitcher. The 250 ml size is common and the graduations are easier to read than those on the bottle with graduate. These are available online for less than \$5.00 each and can be used multiple times. It is suggested that the appropriate amount of catalyst be dispensed into the beaker before starting the mixing step.

Mixing

Master the correct way to mix catalyst into the your CBC



Most of us are familiar with the concept of Thixotropic Index. When measured on a viscometer, many of the materials that we use decrease in apparent viscosity as they are subject to movement. The ratio of the viscosity measured at a very slow speed (e.g. 2 RPM) to that at a much higher speed (e.g. 20 RPM) is the "Thix" Index. For Arjay's CBC that ratio is about 5 and results in the viscosity "at rest" being reduced by 80%, making it much easier to mix in the catalyst.

To take advantage of this phenomenon, the CBC should be aggressively mixed for approximately one minute or to the point where it is visibly "thinner" and a vortex is created. About half of the catalyst should then slowly be poured into the vortex and an up and down pumping motion employed to try to force the catalyst to the bottom of the pail. Once the material is uniform in color, the vortex should be recreated and the remaining catalyst introduced. Mixing should continue until the color is once again uniform and then for at least a minute after that.

Application

Trowel control means consistent material levels and a stronger bond. Notched trowels are a common tool used to apply CBC. We tend to think of this method as a good way to control the usage of material. Held at 90 degrees to the laminate surface, a 1/4" x 1/4" trowel will result in a similarly sized bead. However, if the trowel is held at a 45 degree angle the bead will still be 1/4" wide, but only 0.177" high instead of 0.250". This would result in almost 30% less material being applied - good for saving material, but not so good if the core material is being starved of CBC.

The point is not to avoid using notched trowels. It is to make sure that everyone involved - managers, supervisors and applicators - is aware of the potential variability and action is taken to control it.