



INSTRUCTIONS

Aquapour™

NOTE: CONTENTS SETTLE DURING SHIPPING

Mix Aquapour™ thoroughly before each use & before beginning Step1 and remove Desiccant Bags (5Gal Bucket contents 1 bag and 55 Gal drum contents 5 bags)

Aquapour™ must be adequately mixed after shipping to allow for even distribution of the materials that settle somewhat during shipment. If you have a drum roller, place the drum on the roller and allow it to mix approximately 10 – 15 minutes. If you do not have a drum roller, two people will have to roll the drum back and forth over an area at least 10 feet in length. Place the drum on its side and roll the drum back and forth over the 10 foot length about 20 times. Flip the drum over (end-over-end) and then lay the drum down again and repeat the rolling process.

1. Prep mold. We recommend a Lecithin based mold release. (e.g. Eject-it #25, or Pam)
2. Weigh out Aquapour™ powder. Determine the amount of water required. The exact amount used may vary slightly based on application needs. A water factor (WF) is defined as:
Water Amount = WF x powder mass
A recommended starting point is *WF= 9/11 (0.818). This may be adjusted slightly upwards or downwards to adjust viscosity.
*Higher WF is associated with: lower viscosities and lower strength
*Smaller WF is associated with: higher viscosities, higher strength, trapped bubbles, and slower washout
3. Combine Aquapour™ with water. Stir until uniform and then cast. (Note: it is possible to overmix. If this happens the material may not set up).
 - Working time is ~5-10 minutes.
 - Vibrating the material while in wet form will help reduce bubbling. Vacuum mixing will also reduce surface bubbling greatly.
 - Material will set up in approximately 30-60 minutes. This is the green cured stage.
 - When set, the material will be firm to the touch but not completely rigid.
 - Note: Leaving the part in the mold for too long (1-2 days) will result in softening of the part.
4. Remove mandrel from the mold or split the mold to dry the part. Significant surface area must be exposed during the drying process. Some part geometries are more suitable for complete demolding after the green cure. A part may be left in half the tool to partially dry the part before complete demolding.
5. Dry in a convection oven.
 - We recommend the material be dried at 85°C (185°F) and then at 110°C (230°F) at 1 hour per inch of mandrel thickness each.
 - The material can also be dried at higher or lower temperatures. However, it is recommended that some of initial drying is performed below boiling point and finished above boiling point. Aquapour™ is thermally stable and can withstand temperatures in excess of 200°C (392°F).
 - Drying times for Aquapour™ vary according to the part geometry, surface area, and oven kinetics. The more surface area that is exposed the shorter the drying time.
 - Drying times will increase exponentially as the part geometry increases.
6. Remove mandrel from oven.
 - To avoid cracking, we recommend turning the oven off with the mandrel inside and letting the mandrel cool in the oven. This prevents thermal shock.
 - If surface repair is necessary, we recommend Aquafill™ as a way to give the mandrel a smooth porcelain-like feel.
 - Aquafill™ can also be used to patch any defects or imperfections on mandrel.
7. Seal the mandrel. We recommend using a PTFE release tape for most applications. Another option is Aquaseal™, a water-soluble sealer. Aquaseal may be used in applications where tape can not be removed or that require the absence of tape seams.
8. Lay-up on mandrel to make finished part.
 - Prep mandrel with desired release agent prior to lay-up.
 - Aquapour™ is compatible with the curing temperatures of all commercial pre-preg materials and resins.
9. Wash away Aquapour™ from finished part.
 - The material can be washed away under a faucet or with a standard garden hose.
 - Heated water is not necessary but will drastically increase the wash out of the mandrel.
 - Aquapour™ is environmentally friendly so no special disposal procedures are needed.





ADVANCED CERAMICS MANUFACTURING

For additional assistance, please contact Advanced Ceramics Manufacturing at 520.547.0850.

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