

CULTURED STONE NEWS

Customer Support Services

Often, we receive calls from customers looking for color matches to our Acrybond solid surface adhesive or our various product manuals. For your convenience, we have made all these items—and much more—available on our web site. A variety of technical information may be found by clicking on “Tech Info” from our home page. Items to find there include:

Product Manuals

- Acryline™
- Artistone™
- Acrybond™
- Poly Stone™
- Dura Stone®

Tech Tips

- Patching Poly Stone
- Product Care
- Veining Solid Surface

Technical Bulletins

- Dura Stone®
- Poly Stone™

Dura Stone Calculator

- Easy Excel calculator for measuring material

VISIT
www.acstone.com

Classifieds

As a courtesy to some of our customers, we have included this “Classifieds” section in this issue of Cultured Stone News. For more information regarding items listed, please contact the person corresponding to that item. ACS is supplying the information only and is not involved in the sale of these goods.

- ▶ Roman Marble selling a Gruber GS1500 vacuum mixer for \$4,000. Call Dustin @ 435-628-1189.
- ▶ Sandia Marble selling a GS Granite Spray system. Call Abe @ 505-843-7490
- ▶ Valley Marble selling a GS Granite Spray system. Call Dave @ 520-889-5729

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Create Exceptional Inlays



Creating unique and exceptional looking color inlays in solid surface, wood or acrylic application is quick and easy using the complete **Acryline™** inlay kit. ACS offers this kit which includes mixing sticks, one pint (tin) of acrylic resin (300 mg); one jar of filler material (300 mg); one measuring/mixing cup.

Step One—Prepare Inlay Surface.

Inlay surface should be cleaned of all dust and wiped with denatured alcohol. An overflow dam should be constructed around inlay to allow for overfilling. Overfilling the inlay allows

trapped air bubbles to rise above the work surface without creating blemishes. The dam can be made using masking tape pinched up and around the perimeter, or by applying a clay/silicon bead around the perimeter of the inlay cavity.

Step Two—Calculate the Mix Requirement.

Calculate the amount of material required. In general, inlays should be 1/8 inch deep, and are generally 1/4 inch wide. The Acryline inlay process is designed to use all of the acrylic inlay resin and all of the filler. There is enough inlay material to inlay approximately 30 lineal feet of inlay at 1/8 inch deep and 1/4 inch wide, or approximately 15 lineal feet at 1/8 inch deep and 1/2 inch wide. If you choose to partition out the kit into smaller amounts, the volumetric ratio of resin to filler is approximately 50/50.

Step Three—Mix and Cast.

With mixing stick, gently mix filler into acrylic resin, making sure that all filler is mixed. Do not use a lifting mixing technique as this may introduce air into the mix. Use a circular mix technique and ensure all material is thoroughly mixed. Begin casting into the inlay channel (between the dams) and overfill the channel so that some of the material runs into the dam. Fill the entire channel first, if there is left over material, use it to top off possible low areas.

Step Four—Remove Air Pockets.

After the entire mixed material has been cast, take a paper clip or toothpick and poke the edge of the toothpick or paper clip into the inside corners of the inlay, which is where air may be trapped. In order to assist in air removal, create a

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Q & A

Q: “The use of calcareous filler when making constituted stone to simulate natural stone results in tiny pits being exposed as the product surface is cut and polished. The problem apparently does not occur if siliceous fillers are used. Can you comment on this filler?”

A: Marble chemically is calcium carbonate. It's particle size distribution can vary from fine to very coarse which can be the cause of the peaks and valley's in your part. Calcium Carbonate (Calcite, Limestone) is usually used as a filler for gel coated parts or in flooring applications where it is polished to a high gloss or honed to a mat or rough finish before sealing. Marble whether natural or reconstituted is not recommended for counter tops without a protective gel coat or sealer because it is susceptible to hygienic issues, acid attack from some foods, it is porous and softer than many of the other minerals on the market. Using a quality gel coat solves most concerns regarding the use of calcium carbonate.

Importance of Understanding Filler Densities

Density is defined as the quantity of something per unit volume, unit area, or unit length. Whether your company is casting solid surface or calcium carbonate products, the density of the finished product can be defined as pounds of material per square foot. Most custom solid surface and/or cultured marble job bids are based on a cost per square foot. Some companies will use piece price or linear foot cost. The importance of understanding filler densities is quantified by the amount of raw materials required per part, cost of raw materials, quality of finished parts and finally the relation to price of parts to consumer.

To establish the raw material cost for a job, one must look at the square footage of a sold job, and multiply this number by the raw material cost per square foot plus a multiplier for scrap. The established cost per square foot is the magic number that allows a cast polymer manufacturer to turn a profit. The complexities of calculating profits are simplified for purpose of clarity in this article. A company has many variable overhead costs that are not discussed in this article, including buildings, labor, and other associated cost of running a business.

The method to establish the cost of raw materials per square foot is to look at the density of finished part. Divide the weight of the part by the width and length of the part. This number will give the density. Now, a calculation of raw materials can be done, with the knowledge of the ratios of the raw materials used to make the part in question.

For example, cast Dura Stone solid surface material is approximately 4.5 pounds per square foot. The assumed density of 4.5 pounds per square foot is based on a 5/8 inch cast, which is then sanded to the standard 1/2 inch finished part, thus taking into account a portion of the waste (sanded) material lost. Assuming a standard 40% resin and 60% filler, one can calculate that there are 1.8 pounds of resin and 2.7 pounds of filler. By multiplying these numbers by the cost of the materials, per pound, the company now knows the cost of raw materials per square foot. Furthermore, the pound per square foot of filler and resin may in turn, also be used to figure the quantity of raw materials required for a specific job, when the square footage is known.

The next important relationship offered by knowing the density of finished parts has to do with variations caused by chip loading, chip size and material being

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Acryline Inlays Continued from Pg. 1

vibration using a dual action orbital sander as the source of vibration. While the material is still liquid, take the dual action orbital sander and place a fine grit/micron pad on the sander. Gently touch the sander to the work piece being sure not to touch the liquid material. Vibrate the work surface for approximately two minutes.

Step Five—Let it Harden.

The inlay should harden within thirty minutes and will be ready to sand or ski-off excess material within 60 minutes. Most fabricators often ski-off the excess material and then sand the inlay to the appropriate finish as specified for the job.



used (4). Solid surface products are manufactured with approximately 20%-30% chip loading and 70%-80% Alumina Tri-Hydrate. Chip loading may vary considerably from one supplier to the next, and the overall designated purpose of the filler. Without exploring the marvels of particle packing (please see Cast Polymer Connection July/August 2004—“Go With the Flow”—Particle Size and Viscosity” by J.P. Simmons), the difference of density variations for solid surface fillers is based on how much of a pre-blended mix is chip and how much is ATH. For example, below is a chart of standard colors offered by one of the major filler companies and the corresponding densities.

DURA STONE DENSITIES

Large Chip Rocky Mountain = 4.45 lbs/sq ft Small Chip Aztec Gold = 4.23 lbs/sq ft
Large Chip Magna Sahara = 4.33 lbs/sq ft Small Chip Midnight = 4.18 lbs/sq ft

What does this chart tell us? It explains how a cost of casting the color Midnight has a 6% difference than casting the color Rocky Mountain. This means that if a company quotes all jobs based on the cost per square foot for Midnight, and pours more Rocky Mountain, that there is an immediate perceived difference of 6% in profits, related to raw material costs. Most filler companies up-charge for large chip fillers, which can equate to a higher perceived loss than the example of 6%.

Furthermore, the above example brings the next important aspect of density, which is quality of finished parts. A part may have a decrease in aesthetic quality if the particles in the solid surface are not suspended homogeneously through out the part. To understand how this relates to density, we again look at the above chart for answers. Rocky Mountain contains approximately 12% large chip loading, thus making this color susceptible to chip settling, an aesthetic “no-no”. To avoid the settling a casting operator would lower the amount of resin, thus increasing the filler ratio required to manufacture this color. Once again, the system described above to calculate cost of raw materials and cost per square foot, must be recalculated. This same concept of final quality of finished part must be applied to a small chip color, such as Midnight.

Once the cost of raw materials and the cost per square foot are determined, after weighing in the consequential affects of density verses quality, a company then can place an eye on the bottom line: profits. Profits are defined as the excess of the selling price over the cost of providing the goods. Therefore, by knowing the density of the finished products and calculating the associated costs of providing the finished product, a company can clear the way for a successful and profitable business.

Carl Aune
Int'l Sales Manager

Artistone™ Supplies Now Available!

With the release Artistone, a cultured granite product line, ACS developed a variety of support materials to aid those in selecting a color. Included in the materials is a large display board with 3" x 3" sample squares of the Artistone colors. In addition, a full color brochure is available, which gives a representation of the color line. Finally, a complete procedure manual is available which gives suggestion on mix ratios and casting procedures—and much more.



In addition to our **Acrybond™** solidsurface adhesive, ACS offers **Stoneweld™** a methyl methacrylate adhesive specially formulated for the natural and engineered stone industries, with a 10:1 ratio, it is supplied in readily dispensable cartridge packages—which makes it an attractive choice over epoxy.

Stoneweld hardens to a clear polymer, is U.V. stable, non-yellowing and readily accepts pigments for color matching applications. Colors have been selected to coordinate with all major types of natural stone products, and major producers of engineered stone products.

Stoneweld has a working time of 10–15 minutes and products seamed with Stoneweld may be handled 20 minutes after gel time. Fabrication of bonded parts (polishing, finishing) may take place within one hour after assembly of parts. Stoneweld has excellent performance in U.V. light, impact resistance, wear resistance, scuffing, staining, and in resisting water penetration, including boiling water. Call ACS for more information.

John Emadipour
Director of Technology