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Fiber Board Kiln Shelves Burn-out & use

Your fiberboard shelf is a ceramic insulation product. This material is most effective for use in production studios because it does not store heat the way a ceramic shelf will. This allows, in many applications, the possibility of multiple firings per day.

This type of product does need to be "burned out". Ceramic fiber products have binders in them. The organic binder burns out at approximately 600 degrees F (316 degrees C) and the inorganic binder burns out around 1200 degrees F (649 degrees C). This "burn-out" process needs to be done very slowly so the board does not warp.

Burn-out procedure:

Lay the board flat on the floor of your kiln. Do not set it up on posts. Ceramic Fiber products are impervious to thermal shock unlike clay type products. Prop the lid open approx. 1" or so to allow the fumes to rise out of the kiln. If you have a vent system installed, you should enable it through-out this procedure. Otherwise, make sure the area is well ventilated. The fumes are intense.

Set the program for 10 degrees per minute or 600 degrees F (316 degrees C) per hour. Hold at 600 degrees for one hour. For the next segment, set the controller to climb at 10 degrees per minute or 600 degrees F (316 degrees C) per hour. Make the set point 1200 degrees F (649 degrees C). Hold there for one hour and shut off.

Start your program and it is suggested that you leave the area for an hour or so.

After the kiln has reached the 600 degrees F (316 degrees C) the worst of the smoke and smell will be over. It is natural for the board to turn brown-black and for some discoloration inside the kiln to occur. The final segment of 1200 degrees F (649 degrees C) will finish the burn-out and it will turn white again. In some cases you may have to turn it over and fire again. After the shelf has finished burning out it will be softer than it was and is subject to breakage. Be very careful if you need to flip it over and fire again.

Depending on your type of work you may want to just kiln wash them as they are or use fiber paper as a separator. We recommend you use a non-clay based primer (Hotline's Primo Primer) with fiber type products. Its expansion rate is closer to the expansion rate of the board since it is an alumina based product. Clay based primers can be used but be sure you apply a generous coat to ensure that no little pin holes open up and grab hold of your glass. If you are laying heavy molds or projects on your fiber board you will want to rigidize it. There are two types of rigidizer (mold hardener) on the market, colloidal silica and colloidal alumina. We have found that there are differences in the colloidal silica product. Some hold up well while others just seem to burn right out. The colloidal silica type rigidizer is rated to

2300 degrees F (1260 degrees C). The Alumina type holds up to 3000 degrees F (1649 degrees C). We have not had problems with the alumina type holding up to temperature.

Rigidizing your fiberboard kiln shelf:

You will need plastic sheeting, a high capacity foam roller, paint tray and some rigidizer. It takes approx. 16 oz. per sq. ft. (.5L per 930 sq cm) mixed 1:1 with water. Carefully lift the burned out board and lay a piece of plastic underneath (like a trash bag or two). Allow it to stick out enough so you can slip it back out once you have completed the soaking procedure. Mix the rigidizer and pour into the paint tray. Use the high capacity foam paint roller to apply the mixture. The plastic keeps the mixture from going through the board and down into the brick floor. It also ensures that it will soak through the board and into the back side. Once you have it evenly coated, Prop the lid open and fire the shelf at 250 - 300 degrees F (121 - 149 degrees C). Cook it until all the thermal steam has escaped and the shelf is dry. This may take 3-4 hours depending on the relative humidity in your area. When the shelf has cooled, you apply the kiln wash.

Coating your shelf with refractory cement (shelf coat):

If you want a smoother surface, you first apply coats of Shelf Coat which is high temperature coating cement. This coating has a continuous service rating of 2300 degrees F (1260 degrees C) it is thermally reflective and adds dielectric strength. Use a paint brush to apply. Stir the Shelf Coat with a paint stick. Apply the first coat at full strength. With the kiln vented, fire it at 250 -300 degrees F (121 - 149 degrees C). Remove the shelf from your kiln and place it on a level work surface. Sand smooth with 100 grit sandpaper wrapped around a piece of 2x4 or a sanding block to help keep the process level. Vacuum the dust off using a vacuum with a HEPA filter. Wipe the surface with a damp sponge. Mix the Shelf Coat 1:1 with water for the second coat. Apply with a brush like you did with the first coat and fire again to dry. You can repeat this process until you are happy with the surface. Then apply kiln wash (separator). Again, we have found that the alumina based primer works best with the alumina board, alumina rigidizer and the Shelf Coat refractory cement.