

Using Fiberfrax Ceramic Fiber Board Kiln Shelves

Ceramic fiber board was originally developed in the 1950's by the Carborundum Company as an insulator for use in industries that needed an effective insulation product in processes that involved high heat and difficult working conditions. In 1996, the UniFrax company split from Carborundum. All ceramic fiber materials sold by Sunshine Glassworks Ltd are manufactured in the USA by Unifrax.

While not originally designed as a kiln shelf, ceramic fiber board will do the job in excellent fashion, especially in production studios. Ceramic fiber board is thermally inert -- it does not absorb heat on the way up and does not release heat on the way down. This will generally allow for more firing cycles per day as you do not need to allow added firing time for the heat absorbed/released by regular clay kiln shelves or to avoid thermal shocking clay shelves.

Before you use your fiber board for the first time, you will need to burn out the binders that hold the ceramic fibers together. Place your fiber board on the floor of your kiln, prop the kiln lid open about an inch and follow this firing schedule:

Segment 1:

Fire at 600° per hour to 615°F
Hold for 60 minutes

Segment 2:

Fire at 600° per hour to 1215°F
Hold for 60 minutes

Turn off kiln and let temperature fall on its own

During Segment 1, the organic (sugar based) binders will burn out. These binders will have a sharp, burning odor, so be sure to ventilate the room well. If you are teaching a class and using fiber board shelves, pre-fire the shelves the day before. The binders may leave a brown to black residue on the surface (and perhaps inside your kiln). This residue burns off during Segment 2.

Segment 2 will burn off the inorganic binders which do not have much in the way of odor. Any discoloration should completely disappear, but you may notice on thicker or larger boards, the side that faced the kiln floor may still be discolored. If that is the case, carefully turn your board over and fire a second time.

Once the binders are burnt off, your fiber board is ready to use. You then have two options:

- Use "as is"
- Or take it to the next level and add rigidizer to add strength and stability

TO USE AS IS:

Kiln wash the fiber board or use kiln paper such as Papyrus from System 96. If you are going the kiln wash method, we recommend using **Primo Primer** (Our #0255) on fiber board shelves for best results. If using Papyrus, you do not need to kiln wash first, but using Primo Primer is not a bad idea in case of over-firing.

TO ADD RIGIDIZER:

By adding the rigidizer step, you will increase the life of the board, you will have a smoother surface resistant to "flaking" and the board will be stiffer, less likely to warp or bend.

We recommend using the **Hot Line Fiber Hardener** (Our #73713) with Unifrax fiber board. Be sure to pre-fire the board before adding rigidizer. You can apply rigidizer to small shelves outside of the kiln. You may find it easier to apply the rigidizer to larger shelves on the bottom of your kiln.

First, line the bottom of your kiln with plastic sheeting. For large kiln shelves, you can use plastic sheeting from your builders supply store. For smaller shelves, you can lay a suitable size plastic bag on the kiln bottom.

Dilute the rigidizer 1:1 with tap water. Using a paint brush or roller, apply the diluted rigidizer to your fiber board until the board is saturated. The amount of rigidizer you need will depend on the size and thickness of your shelf. You will need about 8 oz of undiluted rigidizer to soak a 1 sq ft shelf of 1" thick board. The sheet of plastic will keep the rigidizer off the kiln floor and lets the rigidizer soak right to the bottom of the board. When you are satisfied that the board has soaked through, remove the plastic sheet from the bottom of your kiln, prop the lid an inch and fire as follows:

Segment 1:

Fire at 500°F/hour to 275°F

Hold 2 hours

Turn kiln OFF

NOTE: on thicker boards, you may have to fire for longer than 2 hours and small 1/4" thick shelves may dry quicker. Fire until the moisture is completely fired off and the shelf is dry.

Once the rigidizer is fired and the shelf is cooled, you may lightly sand the surface smooth with fine sand paper and then apply Primo Primer kiln wash.

If given reasonable care, your rigidized fiber board kiln shelf should be durable and long lasting. Unlike clay shelves, fiber board shelves are not prone to cracking if heated or cooled too quickly. And unlike clay shelves, you do not need to use kiln posts to lift the shelf off the kiln floor. Since fiber board is thermally inert, you do not need to have warm air circulating under the shelf - a must when using clay shelves. If wish to raise your work closer to the elements, either use many posts to support the shelf evenly, or use a clay shelf between the fiber board and posts. This keeps the fiber board from sagging or warping, especially if you are firing heavy pieces or if you are loading the shelf unevenly.

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