

Instructions

Glass Fusing in a Microwave Kiln

Materials:

- Fuseworks™ Microwave Kiln
- Kiln paper
- Fusing glass assortment
- Dichroic bits and pieces
- Milliefiori glass
- Confetti glass
- Glass cutter
- Hot mitts

Optional Supplies

- Large silver and gold bails
- Small silver and gold bails
- Silver & gold earring set

Step 1 - Firing and Kiln Preparation

The Fuseworks™ Microwave Kiln must be pre-fired before the first use. To pre-fire kiln, center the empty kiln inside the microwave. Ensure lid is sitting on top of the kiln base. Close microwave door and microwave for 3 minutes on high. Wearing heat resistant gloves or mitts, carefully remove from microwave, place on a heat-resistant surface, and allow to cool for 30 minutes. Now the Fuseworks™ Microwave Kiln is ready for use.

Step 2 – Glass Types

Fuseworks™ 90 COE (Coefficient of Expansion) fusible glass is intended for use with the Fuseworks™ microwave kiln. Do not mix Fuseworks™ fusible glass with other brands of fusible glass or varying types of COE, as it will result in cracked or shattered projects.

Step 3 – Basic Cutting Instructions

Do NOT use a self-lubricating style cutter with oil while cutting glass. Oil of any kind on the surface of the glass may mar your glass or cause breakage when fired. If you are not familiar with glass cutting techniques, practice on an inexpensive piece of glass. Glass from an old picture frame or windowpane works well until you get the feel for glass cutting.

Straight Cuts

1. Put on safety glasses.
2. Place glass on a clean flat cutting surface with the smooth side of the glass facing towards you.
3. Start on an edge of the glass holding the cutter firmly in one hand. Keep the cutter perpendicular to the glass. Push the cutter gently and evenly across the glass (FIG. 1). Decrease pressure slightly as you reach the opposite edge of the glass; lift the cutter off the glass at the end.
4. Breaking the score line can be done with breaking pliers. Hold the glass in one hand, with the score facing up. With the other hand, center of the score line in the jaws of the breaking pliers about a half inch onto the glass surface. Apply pressure to the handles; you will hear a “pop” and the score will run, breaking the glass into two pieces (FIG. 2).

HOT TIP! Do not rest or move your hands over the cutting surface. Small pieces of glass can remain and will cut you. Obtain more



FIG. 1



FIG. 2



FIG. 3

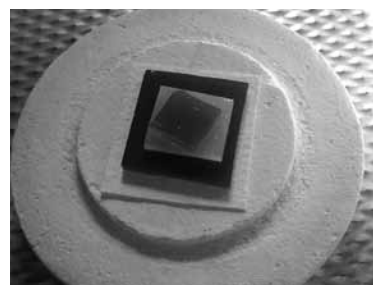


FIG. 4

information on cutting glass curves, ovals and circles through online searches, books and classes.

5. After cutting glass to the desired shape, clean and dry with a lint-free cloth (FIG. 3). If using fusing glue to hold your glass project in place, make sure the glue is completely dry before firing.

Step 4 – Firing Glass

1. Cut a square of kiln paper to fit the base of the Fuseworks™ Microwave Kiln. Place paper on the kiln base. Kiln paper is only good for one firing.
2. Layer cut glass on top of kiln paper (FIG. 4). Leave at least a 5/8" border around the glass and the edge of the kiln paper. Do not allow the glass to touch the sides of the kiln wall or the base of the kiln. Glass allowed to touch the kiln base or walls will stick and can cause irreparable damage to the kiln during the fusing process.
3. Carefully place kiln with glass in the center of microwave oven (FIG. 5). **WARNING:** Never leave microwave or kiln unattended during the firing process.
4. Set temperature for the microwave on high. Choose times for firing from the chart below. PLEASE NOTE: Every microwave oven and kiln will vary. The ranges found in the chart below are average ranges. Actual times will vary depending upon your microwave oven, the thickness of glass, as well as your desired results.



FIG. 5

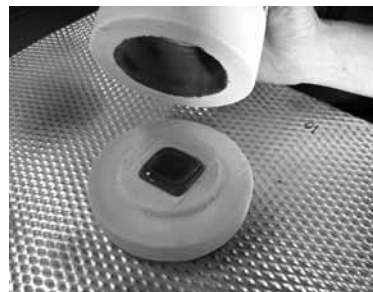


FIG. 6

WATTS	MINUTES	GLASS THICKNESS
800	3 to 4	1/4" (2 - 1/8" pcs.)
1100	2 to 3 1/2	1/4" (2 - 1/8" pcs.)
1200	2 to 3 1/2	1/4" (2 - 1/8" pcs.)

HOT TIP! Take good notes! Use the Firing Log on back of this manual to keep important information about fusing projects. This information will help repeat good projects and prevent bad ones.

5. When microwave time has expired, use heat resistant gloves or mitts to carefully open the lid. If your piece is not fused to your liking, return kiln lid and microwave at 30 second intervals until piece is fused. Do not leave the lid off the kiln for extended periods of time during this stage. Never touch the glass. Do not heat for more than 6 minutes.

HOT TIP! HOT glass looks like COLD glass, BE CAREFUL!

6. A good fuse indicator is to watch for a red glow to appear in the hole at the top of the kiln. When it changes to a yellow/orange, this will indicate the glass has entered a full fuse stage. At this stage glass corners will become rounded. When you see more of a yellow glow, the piece should be fully fused.

HOT TIP! To see the glow more readily, cover the microwave light by cutting a small piece of cardboard to cover the light source and tape into place.

Step 5 – After Firing

1. When desired results have been achieved, using heat resistant gloves, remove the whole kiln from the microwave oven. Set on a heat resistant pad. The area around the Fuseworks™ Microwave Kiln should be free of clutter and in a safe location. Do NOT allow to cool under an overhead cabinet. Never block the opening at the top of the Fuseworks™ Microwave Kiln.
2. Do not remove lid at this time. Removing lid will cause thermal shock, resulting in breakage.
3. Allow your fused piece to cool for a minimum of 45 minutes without removing kiln lid (FIG. 6), time could be longer depending on the thickness of the project. You will be tempted to open the lid and

look at your piece but do not, as this can be dangerous and will result in cracked projects.

4. Do not reuse the kiln until it has completely cooled for at least 30 minutes. Continuous use without cooling can cause damage to the kiln.
5. Your fused project must cool completely before removing from the kiln. This can take up to 40-50 minutes. Once cooled, you can remove the fiber paper from the back of the fused project by rubbing the surface with a wet paper towel or cleaning the project under warm water.

Troubleshooting

Problem: Cracked glass in the kiln during firing.

Solution: Clean and dry glass thoroughly. Make sure glass being used has the same Coefficient of Expansion (COE).

Problem: After glass project cools, fused project cracks

Solution: Cool more slowly. After removing the kiln from the microwave, leave the lid on for at least 30 minutes in an area free of drafts.

Problem: Fused project has sharp edges.

Solution: Use a glass file or fingernail file to remove burs.

Problem: Glass embeds itself into kiln walls or base.

Solution: Allow both glass and kiln to cool completely. Use a utility knife to carefully cut and remove glass from the kiln.

Problem: Cracks, blisters and/or loss of interior kiln coating.

Solution: This should not impact the operation of the kiln. If large areas of the coating are damaged and the glass is heating unevenly, a replacement top is recommended.

Problem: Dichroic glass shatters and breaks during fusing.

Solution: This could be the result of heating the glass too rapidly. Try reducing the power of the microwave by 50% for a longer length of time.

IMPORTANT SAFETY WARNINGS

- An 800 to 1200 WATT microwave oven is recommended for use with Fuseworks™ Microwave Kiln. Do NOT use microwave ovens with plastic interiors.
- Follow ALL microwave manufacturers safety instructions, especially those referring to ventilation and dedicated plug, etc.
- Microwave needs to be free of food and other debris before use with the Fuseworks™ Microwave Kiln.
- Clean the microwave thoroughly after each use with a household cleanser recommended by the microwave oven manufacturer.
- The interior of the Fuseworks™ Microwave Kiln and its contents can reach temperatures of 1400°F - 1600°F which is extremely hot. Temperatures this high can cause serious bodily harm and property damage if not handled properly. Keep kiln away from children and pets while fusing and cooling.
- Prolonged heating of Fuseworks™ Microwave Kiln can cause damage to the interior of the kiln and microwave. Do not exceed 6 minutes of continuous fusing/heating time.
- A minimum 3" clearance must be maintained between the ceiling of the microwave and the top of the kiln.
- If you do not have a turntable, it is recommended that a ceramic fiber blanket be used under the kiln.
- Remove Fuseworks™ Microwave Kiln immediately from the microwave oven when heating is complete.

IMPORTANT SAFETY WARNINGS (CONTINUED)

- Always use heat resistant gloves/mitts when handling the hot kiln. Using two hands, hold the base and the top together while removing kiln from the microwave oven.
- Place hot kiln on a heat resistant and non-combustible surface such as fiber board, ceramic tile or a trivet during the cooling stage. Any other surface could result in melting or burning of the surface material or a fire. Keep your area clear from any clutter. Do not place kiln to cool under a kitchen cabinet. **KEEP OUT OF REACH OF CHILDREN AND PETS.**
- When removing the lid from the base, place the lid upside down on a heat resistant surface.
- Only use the base provided with microwave kiln. Do NOT use kiln wash on the base of the Fuseworks™ Microwave Kiln. **USE KILN PAPER ONLY.**
- Do not use the kiln to fire anything other than glass, i.e. metals or combustibles of any kind.
- Use at your own risk and follow all recommendations and common sense safety precautions.

Microwave Kiln
Fuseworks™ Firing Log
 (Make copies for future use.)

To have the most success with your fusing project, it will require some testing and noting fusing times. Keep detailed firing log notes.

Time	Additional Time	Total Time	Thickness	Glass	Results