

SPECTRUM GLAZES INC.
94 FENMAR DRIVE, TORONTO, ONTARIO M9L 1M5
Ph. 416-747-8310 Fax 416-747-8320

MICROKILN OPERATING INSTRUCTIONS

EQUIPMENT:	MicroKiln	Microwave Oven
	Shelf, or fiber paper	Gloves
	Tweezers	Scissors
	Dry glass cutter	Hair drier
	Heat resisting tile or similar surface for hot MicroKiln	

MICROKILN SAFETY WARNINGS:

1. KILN & CONTENTS BECOME EXTREMELY HOT. HANDLE WITH CARE.
2. ALWAYS USE GLOVES, SUCH AS OVEN MITTS OR LEATHER WORK GLOVES WHEN HANDLING A HOT MICROKILN.
3. ALWAYS PICK UP & HOLD THE MICROKILN BY BOTH THE BASE AND TOP USING TWO HANDS.
4. REMOVE MICROKILN IMMEDIATELY FROM THE MICROWAVE OVEN AFTER IT IS FINISHED HEATING.
5. AFTER REMOVING THE MICROKILN FROM A MICROWAVE OVEN DO NOT SET THE MICROKILN DOWN ON TOP OF OR IN PROXIMITY TO ANY SURFACE THAT IS FLAMMABLE OR THAT COULD MELT, SUCH AS A KITCHEN COUNTER OR THE TOP OF THE MICROWAVE OVEN.
6. ALWAYS WAIT AT LEAST 20 MINUTES AFTER THE MICROKILN HAS COME OUT OF THE MICROWAVE OVEN BEFORE ATTEMPTING TO OPEN THE MICROKILN.
7. ALWAYS FOLLOW THE MANUFACTURER'S INSTRUCTIONS THAT CAME WITH THE MICROWAVE OVEN FOR SAFE OPERATION OF THE MICROWAVE OVEN.
8. VENT THE MICROWAVE OVEN PROPERLY IF FIRING ANY TOXIC MATERIALS IN THE MICROKILN.
9. KEEP THE MICROKILN OUT OF THE REACH OF CHILDREN.
10. USE AT YOUR OWN RISK AND FOLLOW ALL RECOMMENDED AND COMMON-SENSE SAFETY PRECAUTIONS.

GENERAL INFORMATION:

The MicroKiln you have purchased is a container kiln consisting of two parts a base and a cover (hood). Both parts are made primarily of a very light weight, white insulating fiber with a black compound lining the inside wall of the cover. The black material absorbs the microwave radiation and heats up to approximately 1650°F (900°C), thereby heating the chamber to this temperature very quickly.

The wattage of the microwave oven has a direct bearing on the firing time. The firing time is also directly related to the size, or weight, of the article to be fired and the size of the MicroKiln being used.

It is better, and safer, to under fire than to over fire. If the article is under fired, the firing cycle can be increased for a better result, but if it is over fired, a puddle may be created on the MicroKiln base, damaging the MicroKiln base and spoiling the work.

The MicroKiln maximum temperature is approximately 1650°F (900°C). Most glasses will melt at 1400-1500°F (760 – 820°C). A good guideline for judging when glass fusion is starting in the MicroKiln is the appearance of an orange glow at the hole at the top of the cover (hood), which indicates that the inside of the MicroKiln is approaching 1450°F (800°C). The optimum firing time will have to be determined (based on microwave wattage, size of the MicroKiln, size of article(s), and amount of added decoration) by firing test pieces.

Guide lines for firing times are provided on the "Table of Recommended Firing Times". Over firing (setting the microwave oven running time well beyond the recommended firing times in the table with resultant high temperatures) can damage the MicroKiln.

Before firing your MicroKiln, in a location close to your microwave oven you should prepare a fire-proof, heat resistant surface, such as a heat resistant brick or tile on which to set your MicroKiln after removing it from the microwave oven. Although the edges of a MicroKiln generally remain cool the top of the cover and the bottom of the base are very hot immediately after firing. **Placing a hot MicroKiln on a non-heat resistant surface could cause a fire or leave a burn mark on the surface.**

Also, the location where you are going to place the hot MicroKiln should have at least 6 inches of clearance from any flammable material both above it and around it. **In particular, make sure that nothing flammable comes close to the hole in the top of the MicroKiln while it is glowing orange.**

Always prefire a new MicroKiln. Place it on the microwave turntable and prefire it empty for 3 minutes.

Always remove the MicroKiln from the microwave oven immediately after it has finished firing. Over prolonged usage the heat coming out of the hole in the top of the MicroKiln could damage the ceiling of your microwave oven if you regularly leave the MicroKiln to cool inside the microwave oven.

Never leave the room while the MicroKiln is firing. Do not allow small children or pets in the same room when you are firing and especially when you are moving the hot MicroKiln from the microwave oven to the heat resistant surface where it will cool. Keep small children and pets away from the MicroKiln until it has cooled.

Always wear heat resistant gloves when you take the hot MicroKiln out of the Microwave oven.

Let the MicroKiln cool for 20 minutes after each firing before further use.

Similar to conventional ovens, it takes less time to “cook” an already warm MicroKiln than a cold one.
 Use ceramic shelf paper under each article, cut to the same size as the article. Use a fresh piece of ceramic shelf paper for each firing. If shelf paper is not used the article may stick to the MicroKiln base and damage both the article and the MicroKiln base. Kiln wash or shelf primer is not a proper substitute.
 Any articles that you are going to fire in the MicroKiln **must be completely dry** before you fire them.
 If firing a single article, place it in the center of the kiln base.
 If firing more than one piece, place them as evenly balanced as possible.
 Do not allow any of the articles or the shelf paper to touch the side wall of the kiln during firing, as this may damage the MicroKiln and impair its proper functioning.
 In the unlikely event that you notice sparking, turn off the microwave immediately.
 Rinse the base of the fired article after cooling, to remove traces of ceramic paper which is harmful if inhaled. It is recommended that you use a dust mask when working with ceramic shelf paper.

If firing any materials in the MicroKiln that the material suppliers specify are harmful or toxic make sure that the microwave oven is properly vented to prevent exposure to toxic fumes.

Test fire sample pieces before undertaking regular production firing.
 Keep a detailed log of firing times and results in order to be able to repeat your results.

We recommend that you use separate microwave ovens for firing MicroKilns and for firing food items.

OPERATING INSTRUCTIONS – GLASS FUSION

You can satisfactorily fire all kinds of glass in your MicroKiln. However only use two or more glasses that have the same coefficient of expansion (COE) to ensure compatibility. Fusible glass is recommended. There are two major classes of fusible glass, COE 90 and COE 96. Do not fuse them together. They are not compatible and your piece will probably crack if you do.

Prepare a heat resistant surface on which to place your hot MicroKiln after it has fired.

Cut flat glass to desired shape and size. Clean and dry it. Use a dry (non-oiling) glass cutter for glass that will go into a MicroKiln.

Only use glass that is of a uniform thickness. **The use of beveled glass or glass of varying thickness can be dangerous as the glass may shatter as it is cooling.**

Decorate with Multipen colors and then dry thoroughly. Use of a hair drier or placing the article on a warm surface will speed up drying.

Cut shelf paper to size.

Place article with shelf paper on the base of the MicroKiln.

Place base of MicroKiln with article in the center of the microwave turntable.

Place the MicroKiln cover (hood) on the MicroKiln base being careful not to shift the article. It is important that you not let the article or shelf paper touch the side wall of the MicroKiln during firing.

Turn on microwave. See suggested times in the “Table of Suggested Firing Times”.

Observe firing – hole at top of MicroKiln should glow orange for at least the last 30 seconds of the firing time. **Never leave the room while the MicroKiln is firing.**

When cycle is finished, remove kiln immediately from the microwave oven and place on heat resistant surface.

Allow MicroKiln to cool unopened for 20 minutes to “anneal” the glass.

Remove the cover (hood), examine results.

If not completely fused, replace in microwave and refire for 20 to 30 seconds longer than original firing time. Repeat this procedure adding 20 or 30 seconds more if further firing is still needed.

Again allow to cool unopened for 20 minutes.

When the article has cooled completely remove it from the base with tweezers and clean off all particles of shelf paper with a damp cloth.

**TABLE of RECOMMENDED FIRING TIMES (in minutes)
For GLASS**

Microwave Oven Rating Level of Melting	700 Watts		800 Watts		900 Watts	
	Tack	Fusion	Tack	Fusion	Tack	Fusion
Small MicroKiln						
Sample Size: 1.75x1.75x1/8” (45x45x3mm)	4.5	4.8	2.5	3.0		
1.75x1.75x3/16” (45x45x5mm)	6.0	7.5	3.0	4.0		
Medium MicroKiln						
Sample Size: 1.75x1.75x1/8” (45x45x3mm)	8.0	8.5	6.5	7.0		
1.75x1.75x3/16” (45x45x5mm)	10.0	10.5	7.2	7.7		

OPERATING INSTRUCTIONS – CERAMIC DECORATING

Decorate porcelain bisque with multi-pen.

Same instructions as for glass fusion except firing times will be somewhat longer.

Be certain that your **pieces are completely dry before firing**. Damp ceramic is quite likely to explode if fired in a MicroKiln due to the extremely rapid conversion of water into water vapor. This could damage the inside of your MicroKiln.