

Basics of Fused Glass

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- I. Understanding Glass
 - a. Types of Glass
 - i. Transparent
 - ii. Opaque
 - iii. Coated
 1. Iridized
 2. Dichroic
 - b. Forms of Glass
 - i. Frits
 - ii. Stringers & rods
 - iii. Textures
 - c. Compatibility
 - i. Coefficient of Expansion (COE)
 1. Common COE for fusing
 2. Manufacturers
 - ii. Exceptions
- II. Understanding the Firing Process
 - a. Firing Effects
 - i. Slump
 - ii. Tack fuse
 - iii. Full fuse
 - b. Firing Zones
 - i. Brittle Zone (0 to 700°) - Glass is easily stressed
 - ii. Transition Zone (700 to 1100 °) - Structure of glass changes from solid to a somewhat soft consistency. Also the same zone area to anneal glass.
 - iii. Pliable Zone (1100 to 1300 °) - When glass begins to bend. Zone typically used to fire polish glass without changing character. Approximately at 1275°, glass can be manipulated and slumped.
 - iv. Fluid Zone (1300 ° and up) - Fusion begins. The hotter the temperature, the more "fluid" the glass. Approximately 1370° tack fuse and approximately 1425° for full fuse.
 - c. Log Records
 - i. Notebook for firing
 1. Date/time
 2. Program
 - a. Segments - Rate/temperature/hold time
 3. Results
- III. Lets Get Fired Up
 - a. Preparing the kiln
 - i. Shelves

1. Kiln wash
 2. Fiber paper
 - ii. Temperature
 1. Start with cool kiln!
 - iii. Firing Schedule/Program
 - b. Preparing the glass
 - i. Clean, clean, clean
 - ii. Check surfaces
 - iii. Deciding desired result
 - iv. Plan the firing schedule
 1. Rate
 2. Temperature
 3. Anneal
 4. Cool
 - v. Protect shelf
 - vi. Log schedule and results
- IV. Creative Techniques & Strategies
 - a. Layering
 - i. Creating depth through transparent layers
 - ii. Incorporating texture
 - b. Etching
 - i. Removal of coating – pre-fire
 - ii. “Frosting” – post-fire
 - c. Fiber papers
 - i. Creating voids for “stringing”
 - ii. Adding reverse images/effects
 - d. Casting – open molds

Recommended Resources

Books:

Lundstrom, Boyce. 1983. Kiln Firing Glass: Glass Firing Book One.

Reynolds, Gil. 1990. The Fused Glass Handbook – Revised Edition.

Magazines:

Glass Craftsman (monthly) – typically found at major book stores. Has some articles on fusing and firing techniques.

Websites:

www.warmglass.com – Best comprehensive website focused on fused glass. Includes “gallery”, sources, bulletin board to post questions and more.

www.cmog.org – Corning Museum of Glass

www.bullseyeglass.com – Bullseye Glass is a manufacturer of fusible glass and kiln products. Website offers technical tips.