



System 96 Tips & Tutorials - FAQ

Q Why did you choose a "96" C.O.E.?

A The Spectrum line of stained glass products was formulated to the nominal "96" expansion long before we elected to manufacture a Tested Compatible line for kilnforming and other Hot-Glass work. We chose the "96" Expansion because it facilitates the creation of glasses with "friendly" forming characteristics. The wide variety of glass types we manufacture demands a formulation that has great flexibility.

Because many other glassmakers, as well as suppliers of blowing batch, frit, color bars, etc., chose "96" for similar reasons, we decided to build upon this "family" rather than reformulate our products to the C.O.E. "90" range.

Q What's the difference in kilnforming at "90" and "96"?

A Really very little. What you learn with one glass will largely apply to the other. System 96 is a lower temperature glass -- that is, it takes less time / heat for S96 products to reach a given viscosity than it does common COE 90 products. Understanding this, and looking over the S96 Firing / Annealing Guidelines, a kiln crafter will quickly adapt to the differences.

Q What do you mean by "working range"?

A To blowers and other manipulators of hot glass, this means more time in that "sweet spot" of temperatures where the artist can affect the glass. A "longer" glass offers more tolerance and freedom for creativity. Glass fusers will discover a wider range of temperatures between "not-yet-fused" and "beyond-full-fused," thus greater freedom in forming and a wider margin of error. Glasses with a shorter working range "set up" or "freeze" faster than "longer" glasses.

Q What about devitrification?

A All System 96 products have been specially formulated to resist devitrification. That, plus compatibility testing, is what makes them different from other Spectrum glass products.

Q What about Iridescent Glass?

A There is a broad range of iridescent colors and textures to choose from, and all withstand full fusing temperatures. They are stocked by all System 96 distributors.

Q What does Uroboros have to do with Spectrum?

A Uroboros is one of our System 96 Compatibility Partners. They make System 96 Tested Compatible specialty colors and textures, Rods, Frits, Stringer, Noodle, Confetti, and who-knows-what else.

Q Where can I buy System 96 products?

A They're sold by almost every supplier of Glass Fusing materials. If your usual source is not satisfactory, check our ["System 96 Distributor List"](#) or contact us for assistance.

Q Should I Still Test?

A Testing is a good idea, and we will continue to recommend it, even for "Tested Compatible" products. Testing is your best teacher. You'll discover subtle nuances in different glasses, monitor color shifts, and be better able to predict various characteristics that may result from the fusing process. Plus, because our equipment and procedures differ from yours, you just might uncover a set of circumstances in which our "Tested Compatible" glasses don't act as expected in your system of variables. Better to discover that in testing than in a disappointing project.

Note: With Spectrum System 96 glass, all glass of the same stock number from the same production day will be dependably identical. There is no meaningful variation in C.O.E. or other characteristics within a production day.

Q What About Using Spectrum "Stained Glass" Products in Hot-Glass Work?

A Spectrum makes a tremendous selection of stained glass products that fall outside of our "Tested Compatible" program. As always, we will endeavor to manufacture those products around the "96" C.O.E. But, outside of System 96, non-compatible glass will not be segregated from compatible glass, so testing is a must. And, in our non-System 96 products, devitrification must be dealt with by using our clear "Fusing Standard" (#100SFS) as a "cap," or by use of an overglaze, or by careful management of the contributing variables in the fusing process.

Many glass users have had great success using our Stained Glass products for Hot-Glass work. But be aware that both stress and devitrification, even if not immediately apparent in your finished projects, can cause cracking or surface crystallization over passage of time. So please, when fusing with non-labeled Spectrum products, test habitually and take careful measures to control devitrification.

Q Why is a System 96 glass more expensive than the same identical color of regular Spectrum glass?

A There are a number of reasons: (1) the agents in the System 96 formula that resist devitrification are considerably more expensive than their counterparts in "regular" Spectrum glass. (2) System 96 products are made in much shorter runs than "regular" Spectrum glass, thus, they are significantly more costly on a per Sq.Ft. basis. (3) the costs of testing, classifying, labeling, etc., and, especially, (4) suffering the costs of making non-compatible glass when only compatible glass will do. It adds up fast.

Q Does Spectrum publish [firing and annealing guidelines](#) to be used in fusing and slumping?

A Yes. Remember, these are only guidelines, not strict rules. You'll need to adjust your times and temperatures based on the characteristics of your equipment, the actual size and thickness of your project, and the aesthetic effects you wish to achieve.

Q Can Spectrum be ground into frit & fused on the surface of my project?

A Sure. But why not go easy on yourself (and your equipment) and just buy the excellent crushed glass frits supplied by Uroboros Glass Studios? Every System 96 color is available, including Iridescent, in 5 particle sizes, in both 8.5 oz (.24kg) and 4 Lb (2 kg) jars.

Q Can I fuse with "regular" Spectrum Iridescent Glass?

A The "Mother of Pearl" coating on non-System 96 Spectrum Glass will withstand temperatures up to about 1300°F. While you can produce some very interesting bent and slumped pieces that will retain the iridescent finish, it will burn off of most pieces at full-fuse temperatures. You can maximize your iridescent effects at higher temperatures by fusing with the iridescent surface against the kiln shelf, and by minimizing time spent above 1400° F. System 96 Iridescent glass will not burn off, even at full-fuse temperatures.

Q I've been fusing with Spectrum for years with few problems; why should I pay the premium for "Tested Compatible" System 96?

A If you're doing your own testing and require no protection from devitrification, by all means fuse with "regular" Spectrum glass. But be aware that both stress and devitrification, even if not immediately apparent in your finished projects, can cause cracking or surface crystallization over passage of time. So please, when fusing with non-labeled Spectrum products, test habitually and take careful measures to control devitrification.