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Arrow Springs Manufacturer and Supplier to the Flameworking Industry 4301 A Product Drive Shingle Springs, CA 95682 Phone: 1(800) 899-0689 ArrowSprings.com

Stringer Test for Compatibility

Not everybody trusts this test but, if done accurately, can be a very reliable.
Take two glasses that you want to test for compatibility. If they are not the same diameter, make them so. If you use unequal amounts of glass, you will get a distorted reading. The glasses need to be of contrasting colors in order to be able to work with them properly and to read the results of the test.

Heat one end on both rods and then touch them together so that they align down their length. They should overlap about one inch. Now heat the joined area in the flame until they are completely fused together. Marver them round if necessary. It is very important that you do not twist. When the joined area of the glass is uniformly hot, pull it out into a stringer. Keep pulling the stringer, keeping it straight, until the glass hardens. Pull at least an 18” stringer. If you twist as you pull, you will cancel out any tell tale effects that would normally show up in non-compatible glasses. You can pull vertically to avoid the effects of gravity.

When the glass cools, cut it to 12" long from the center of the pull. If the stringer bends by itself, the two glasses are of a different C.O.E and are not exactly compatible. When you heat glass, it expands. When it cools, it contracts. Glass with a high C.O.E. (coefficient of expansion) expands, and then contracts more than glass with a lower C.O.E. Since the two glasses were joined while molten, any differences in the amount of contraction as they cool and stiffen will reveal itself by bending the stringer. The glass that is on the concave side of the bend has the higher C.O.E. because it contracted more. If the curve falls away from a straight line too much, it may not be compatible for your application. Glasses used for beadmaking can have more curve in it than glasses used for fusing, especially large fused pieces. Opinions for the amount of acceptable curve range from about 1/4" to 3/4".

To make this test more significant, you should also do a test to determine how close to the same temperature the two glasses soften, even when the stringer test shows that the glasses are compatible. The glasses are not annealed under ideal conditions and different glasses may cool and stiffen differently in the open.

Make single color stringers from the colors to be tested. They must be identical in diameter and the same length. Place them next to each other but, not touching, in a kiln so that they are held at one end. They should be parallel to the floor and elevated from it. This is easiest to do by pinching them between two kiln bricks. Heat them up slowly and observe the temperature at which each bends. If you heat them too quickly, the results may be distorted. For instance, black glass absorbs heat faster than white glass. If you heat up black and white quickly, the black glass will melt first, even if their melting temperatures are identical. For best compatibility, the bending temperatures should be within 50º F of each other.