Recognizing Quality in Art Glass

The Clues to Quality

Compared to things we're used to buying every day, art glass is an unusual commodity. It comes unpackaged, unlabeled, and in a wide enough variety to boggle the mind. It's expensive, too. Telling good glass from bad isn't easy—unless you know what to look for. There are a number of cues to quality that you can learn to recognize before you buy. Becoming familiar with them will help you avoid the expense and frustration of buying defective or poor quality art glass.

The things to look for fall into two main categories: features that signal structural problems in the glass, and characteristics that will affect the appearance of your finished product.

Structural Cues

Structural problems in glass translate into poor cutability, high waste and high frustration. Even if you manage to work around them in cutting and fabrication, they can endanger the structural integrity of your finished project and may interfere with its appearance. These defects are the result of one or more problems in the manufacturing process—poor composition, incomplete melting, faulty annealing, and others.

Batch & Stones

The most common (and easiest to spot with close visual inspection) are stones or batch in the glass sheet. These unwanted aliens are bits of granular raw material that have failed to melt completely. They will appear as tiny grains of sand-like material on the glass surface (batch) or as small rocks embedded in the sheet (stones). Examine the glass carefully and steer clear of batch and stones! Where you see a little, there will be more that are invisible to your eye. Surface batch is a direct cue to poor quality glass. It is unattractive and may interfere with your cutting wheel, but most importantly, it foreshadows other less apparent quality problems. Where you see batch on the surface, there may be stones that you cannot see. A stone may send your score ripping to oblivion, and if included in a finished project, could break the glass sooner or later.

Surface batch appears as tiny grains embedded in the surface. Where there is batch, there will be stones.

An internal stone has caused breakage in this sheet.

Visible stones in streaky green cathedral.

—Thick-Thin Variation

Examine the cut edges of glass sheets before you buy. Look for irregular thin or thick spots that are not texture-related. When glass sheets are formed without careful attention to uniformity of temperature, thick or thin spots will result. They represent structural weaknesses that may carry over to the finished project, can contribute to poor cutability, and may cause problems when foiling or leading.

Irregular thick or thin spots can be found by examining sheet edges.

—Warpage

One easy test that will provide a clue to cutability is inspecting for sheet warp. Does the piece of glass lay flush on a flat surface or can you detect a bend in it? A warp indicates stress in the sheet that you may discover painfully later on. A slight warp in a large sheet is probably no reason for concern, but if you detect even minute curvature in smaller sheets, let your suspicion be aroused.

—Mix-Flaking

In multi-colored glasses, each glass in the mix needs to be compatible with the others to assure stress-free results. Look at the cut edges of the sheet, paying close attention to the areas where two colors meet. Look for indications that the two colors are "resisting" each other rather than mixing cooperatively. It will sometimes appear as though one color is literally "flaking" away from the next.

This streak of opal is "resisting" the mix and trying to flake away.

—Irregular Breaks & Unsuccessful Cuts

If the sheet you're considering has a broken edge, pay attention to the "quality" of the break. If its shape is very uneven and irregular, suspect poor annealing, mix incompatibility, or both.

Also pay attention to the apparent success or failure of the last person who tried to cut a sheet of glass. Look for scores on the surface that went unfulfilled, or jagged edges that indicate the factory, wholesaler, or dealer had problems cutting the glass. By examining the score closely, you can tell whether the unsuccessful cut was caused by poor glass or by poor glass cutting. In the latter case, the glass was probably "over scored" (too

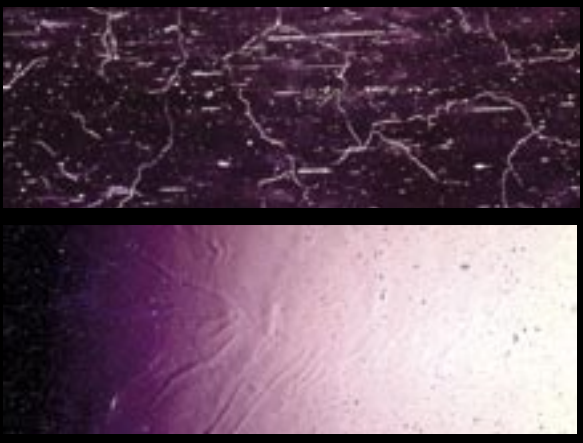
much pressure applied). Look very closely to detect minute chipping along the score line. If it's apparent, over scoring is the more likely culprit and the glass may not be to blame.

This piece shows two clues to poor cutability: a very uneven, irregular edge, which is an unnatural way for glass to break, and a previously unsuccessful score.

—Surface Chill

In the manufacturing process, when uneven temperatures occur at the point of sheet forming, all sorts of interesting effects result. They can be attractive to the "arty" eye and often add an antique-like character to a finished project, but sometimes represent structural weaknesses in the glass. Before you buy glass with surface-chill characteristics, know how you intend to use it. If it will be under unusual tension, or if it will be used in very large pieces, choose something else and avoid the possibility of problems.

Surface chill takes a number of different forms. It may look like healed cracks or clustered "waves" on the surface.



Two examples of surface chill in cathedral glasses. It can be attractive, but be cautious.

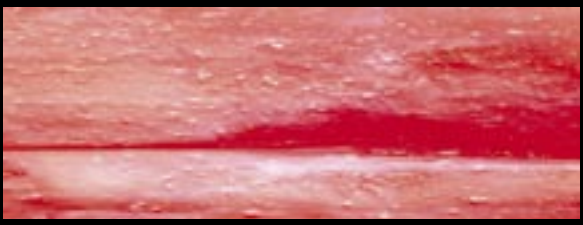
Appearance

Beauty is subjective. The purpose of this section is not to tell you what is attractive or what is not, but to help you learn to recognize various characteristics of art glass. When you're equipped with criteria to judge by, you're in a better position to choose the piece of glass best suited to your needs.

Surface Reflection

Judge glass for surface quality. Examine it in reflected light, tilting it to various angles. How would you describe the general surface? Smooth and shiny? Rough and leathery? Somewhere in between? Unintentional textures may be very slight and subtle, sometimes resembling the surface of an orange peel or rough leather. They limit light reflection and are less jewel-like than other, more brilliant glasses, which may or may not be the effect you desire.

Are there persistent surface defects? Look for batch, pock-marks, accidental air bubbles, chill marks, and so on. If the peculiarities denote structural problems, you know what to do. If not, then consider whether they will add to or detract from the appearance of your finished project, and let that be your guide.



This surface is filled with pock-marks from a very gaseous composition.

Tilted in the light, this sheet reveals a surface like an orange peel, or rough leather. It may contribute to or detract from the appearance of your piece.

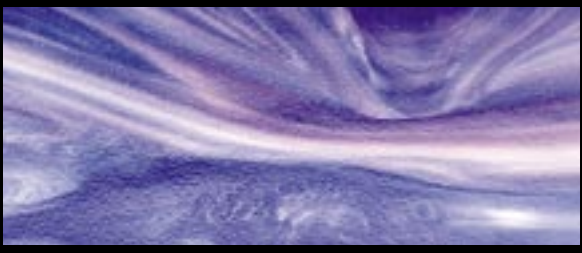
—Mix Distribution

In multi-colored glasses, pay attention to the distribution of the color-mix. Are the colors fairly evenly apportioned throughout the sheet or are there large areas of single colors in some parts? You will find some two-color glasses that appear heavily amber at one end, for example, and mostly white at the other. Perhaps it's the perfect effect for what you have in mind, but often you end up with a lot of scrap. Consider the average size of the pieces you will be cutting from the sheet. Is it important that each one have similar character? If so, you will want to be sure the colors are evenly distributed. Knowing how you intend to use the glass will help you judge whether its mix is appropriate or defeating to your purpose.

Uneven mix distribution in a sheet of amber and white.

—Light Transmission

Make sure to examine glass qualities in both reflected and transmitted light. As you know, its characteristics may change considerably in different lighting conditions. In multi-colored glasses, evaluate the definition of colors in reflected light. Then do the same in transmitted light. Do the colors maintain their definition in relation to each other or do they change in the light? If you know how you'll use the glass, decide whether or not it will achieve the effects you desire in predictable lighting.



Some surface textures limit light reflection.

Insist on Quality

The glass you buy for stained glass crafting will be quite different from common window glass. It will be "art glass." Most of it is typically "handmade," or at least, it encounters many "hands-on" processes during manufacture. This is part of the beauty and appeal of art glass, but it is no justification for poor quality. Examine glass closely before you buy. Look for the cues to structural problems and poor cutability. Evaluate surface characteristics, mix distribution, and color definition. Compare properties in both reflected and transmitted light. And above all, insist on quality. Your dollars and the effort you spend on a project are worth it.

An educational guide brought to you by:

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"Marbles" by Bill Hillman, Mansion Glass, Olympia, WA .
Photo: Roger Schreiber