

Glass Recycling Into Glass, Tile and Ceramic Objects Using Kiln Firing



Both 2-dimensional (tiles) and 3-dimensional objects (pots) can be created from recycled glass and sold in art markets or galleries. Glass tiles can be designed for both custom applications and/or mass produced for use in any home or commercial building where traditional ceramic tile would be used. Adding in elements of clay or other natural materials during the manufacturing process creates a variety of tile looks. Recycled glass countertops can be appealing to the modern designer. It is also possible to custom design glass for clients.

Types of Glass and Availability:

For initial product development, clean glass can be sourced as waste from auto or commercial glass shops, window and door manufacturers, other manufacturers using glass (e.g. solar panel manufacturers), large retailers who sell glass items and possibly clean bar glass. Post consumer recycled glass, which is generally quite dirty, may be integrated into production after processing experience is gained by using clean glass. Either tempered or annealed glass can be used.

Post-consumer glass can be sourced from local glass collections and processing programs if available. If a glass market for these products is developed, this may help launch a local collection program. Obtaining bottle/container glass can often be accomplished by working with a local bar or restaurant that is open to setting the material aside.



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Potential Customers

- Home/building owners interested in green products
- Green builders and architects
- Your own retail website
- National tile agents and brokers
- Custom creations - commissions
- Art markets around nation (with recycled focus or not)
- Wholesale tile vendors

Equipment Needs

- Kiln – any kiln with electronic controls will work for one-offs and product development. Minimum production kilns need to be one-level kilns like those shown at <http://denverglass.com/warm.html>. For large-scale production, continuous kilns <http://www.beltfurnaces.com/> are best.
- Mixing equipment - for blending glass with fluxes, colorants, and binders. Can be done by hand during product development.
- Glass crushing equipment – If not available crushed through local program, a range of glass crushing equipment is available for purchase.
- Screening Equipment – may not be initially necessary if using purchased crushed glass, but a long-term requirement for new product development.
- Molds – Custom made or purchased
- Common equipment associated with glass or ceramic operations: cooling racks, storage racks, staging areas, personal protection equipment, water used for mixing and cleaning.
- Containers – for collection, storage, and segregation of colors and grades.
- Insurance & licensure
- Start up costs vary widely based on location and business model. Please contact your local NM Small Business Development Center to determine actual costs (www.nmsbdc.org).

Glass Products Business

Considerations: Research avenues to receive a steady stream of recycled glass as an essential first step. A good starting point is to reach to your local solid waste department. Procuring this material locally is ideal as glass is expensive to transport due to its weight. Another element on the sales side is shipment: if shipping the finished product, it's important to understand how that process will work, be it shipping in bulk or by custom orders. This will be essential on the product pricing side of the business.

Square Footage of Facility to Start Operations: Product development and art can be done in any studio. Production operations require a minimum of 2000 square feet plus 1000 square feet per production worker. 240 volt minimum 100 amp electrical service is a must.

Customer Selling Points: It's important to highlight that the product is made with recycled-content glass in order to reach your target market. Be clear on what percentage of the piece or tile is recycled-content and tell the story noting from where the material originated in order to add to the buyers' experience and interest in the product. Many niche retail and online stores will be interested in re-selling recycled content products.

Help Available: Interested entrepreneurs and artists do not need to be daunted by process development. New Mexico is home to an engineer with more than ten years of experience in recycled glass kiln processes. He is available both for group presentations and ongoing process development, to help individuals overcome technical barriers and to help avoid mistakes. Additionally, the New Mexico Recycling Coalition can assist with recommending local partnerships for sourcing raw glass material.

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Support Links On How To Create Recycled Glass Tiles

To get a sense of what kind of products can be created with recycled glass go to <https://sites.google.com/site/recycledglasskilnprocesses/>.

The first in a series of 18 how-to videos on kiln processes using recycled glass can be seen at https://www.youtube.com/watch?v=PxO69kFy_rs&list=UU5hY20gl0wrTGaIMjAJ9QQ

Other informative links: <https://sites.google.com/site/recycledglassceramics/tableofcontents>
<https://sites.google.com/site/kirbgood/>

<https://sites.google.com/site/borosilicateglassrecycling/>



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