

GLASS PRODUCTS MANUFACTURING

AUGUST 2018 TECH BRIEF FOR ADVANCED
MANUFACTURING TALENT NETWORK



Glassboro got its Name for a Reason

In the original thirteen colonies, the first successful glass factory venture was the [United Glass Company](#) located near present day Alloway in Salem County. The glass factory produced bottles, drinking glasses, window glass and other products for [150 years](#). The [Heritage Glass Museum](#) in Glassboro preserves the history of glass innovation and art in New Jersey.

New Jersey is still home to glass bottle manufacturing. [Ardagh Group](#) maintains a production location in Bridgeton. [Saverglass](#) has a location in Ramsey. Last year, Corning Inc. opened a plant in Vineland which produces [pharmaceutical packaging](#) in partnership with [Merck and Pfizer](#).

Art glass, stained glass window repair and glassmaking-as-a-hobby are thriving in NJ. At Rutgers and in Morris County, [glassblowing](#) has its own curriculum. Scientific glassblowers are retiring, creating new demand in this field. In response, [Glassroots](#) has been preparing Newark public school students for [glassblowing apprenticeships](#).

Labor Force Takeaway

According to [EMSI database](#), there were 4,773 jobs in NJ within the glass manufacturing industry in 2017. Average earnings were \$70,838. Approximately 65 positions were identified as self-employed. While this surely indicates contractors in the industry (average wages ~\$45K), this number may also mean experts earning income as consultants. As with most advanced manufacturing positions, the workforce is aging.

Robotic tools have long been implemented on glass production lines, but there are countervailing forces acting on the industry as well. Specialized styles and growing niche markets require artisan creativity and skill, which cannot be automated. [Registered apprenticeships](#) supporting these niche markets include: Stained glass glazier, glass decorator, glass engraver, glass blower and scientific glass blower.

Glass has always been part art, part science. [Art glass](#) techniques and skill can be as valuable as knowledge of glass automation or advanced technology with smart glass. Though not in NJ yet, smart glass technology could be licensed or manufactured directly in NJ to serve upscale architecture and interior design.

Glass product manufacturing is mostly concentrated in southern NJ. This gives it outsized economic importance. If nurtured, the growing glass industry could expand further in New Jersey and capture market share. TAN recommends that entities issuing RFPs for upskilling and for apprenticeship programs specify inclusion of a module about glass manufacturing, glass decoration techniques and glass technology innovation.

An Ancient Technology Gets Trendy and Smart

Although demand for glass jars used in the packaging of processed fruit and vegetable products has been replaced with plastic jars for decades now, a [recent shift away from plastics](#), due to social and environmental concerns is [impacting consumer](#) choices.

Meanwhile, [glass containers are experiencing growth in demand](#) as the trend of premiumization grows in all categories. Most new product [launches in beer, wine, and spirits each year](#) are in glass containers. Artisan products, and high-end foods and [perfume](#) brands continue to use glass.

Millennial consumers focus on new tastes and experiences. For example, both [GenXers and millennials](#) help drive sales of “foodie” brands such as Stonewall Kitchen, Dean and DeLuca, Drew’s and refrigerated salad dressing brands like Marie’s and Panera. [Specialty consumers](#) gravitate to ready-to-eat foods, local produce and micro-brewed beers. They also have a healthy mindset in that they favor yogurts, quinoa, meal-preparation boxes and use flavored ingredients from [oil and vinegar tap rooms](#) to dress up simple, healthy meals.



FIGURE 1 Super-Premium Bottle Decoration

The demand for glass-bottled [beer, wine and spirits](#) has [also increased](#). The rise of super-premium brands of spirits is increasing demand for made-to-order artistic bottles. Figure 1 shows examples of award-winning bottle design and decoration techniques of etching, color printing, embossing and use of gold foil. Also, increasingly popular are limited addition bottles, for product launches, commemorative occasions, test markets, etc.

In a related trend, hands-on winemaking venues such as those in [Wallington](#), [Dayton](#) and [Cherry Hill](#), allow groups to customize bottles for wine they produce. Venues to make-your-own-glass-art, [learn to blow glass](#) and/or to etch/emboss/sinter to decorate glass products are also popular around the state. A non-inclusive list of locations includes [Morristown](#), [Newark](#), [Warren](#), [Mullica Hill](#), and [Millville](#).

Recycling of glass is becoming increasingly [automated](#); even so, jobs continue to be created as the industry expands. The increase in recycling facilities revenue ([3.4% in early 2018](#)) is expected to increase at an even faster rate in the future.

Smart glass technology is finding uptake in the automotive and commercial building markets. There are currently nineteen US and Canadian companies in the growing [smart glass market](#). Like bottle manufacturing, the smart glass industry is highly energy-intensive amounting to roughly 30% of the total cost. New manufacturing strategies include higher temperature refractories and re-using waste heat to pre-heat new batches which can result in 18% savings in energy. The recycling of glass also leads to an estimated savings between 15% and 35%.

[Arglass](#), a new entrant to the glass manufacturing market, intends to open its first plant in [Georgia next year](#); Manhattan is its headquarters currently. This year [Saverglass](#) expects [to open a facility and decoration workshop](#) in Mexico to service the tequila, wine and rum markets. O-I will [add a fifth furnace](#) to their facility in Nava, Mexico. If Arglass, [I-O](#) (née Owens-Illinois), [Ardagh](#) or [Anchor](#) need to expand capacity, why shouldn't NJ be considered as a site for their next plant? Similarly, why shouldn't NJ be a site for smart glass production?