

Topic Hub: Fiberglass Fabrication Subsection : Background and Overview

Fiberglass is either molded to produce rigid fiberglass products or extruded to produce fibers and filaments for insulation, yarn, and mat or roving. Rigid fiberglass products are manufactured through a process of molding glass fibers, and/or thermoset plastics to produce what are known as fiberglass, fiberglass reinforced plastics (FRP) and composites. Other fiberglass products include strands and yarn used in insulation, woven mats, polymer castings, and sheet molding compound (SMC). Further discussion of these and other fiberglass products may be found in [40 CFR 63. Subpart WWWWW](#).

Rigid fiberglass products are very durable and corrosion resistant. Examples of common rigid fiberglass products are boat or canoe hulls; other products include furniture, corrosion resistant equipment, bathtubs and bath fixtures, other building materials, heat exchanger components, floating pier modules, large storage tanks, truck body and airplane body components, sporting equipment, printed circuit board substrate, ductwork, piping, fans, and machinery housings.

While the composition, shape, and size of rigid fiberglass products vary significantly from one facility to the next and from one production line to the next, the essential steps and material inputs and outputs are somewhat similar. Different molding options include open, closed and centrifugal molding:

- **Open molding** uses a one-piece mold or structure. First, a layer of gel coat is applied and cured. Then, fiberglass and sprayed resin are layered into the mold or structure and allowed to cure. Open molding tends to release the highest amount of emissions during processing. Other options include closed-mold and centrifugal molding systems.
- **Closed molding** uses a two-part mold wherein the initial gel coat application is first applied. Fibers are then sprayed or placed in the female mold (in the form of chopped fibers or laminated sheets or mats respectively) on top of the gel coat. The mold is then sealed by vacuum, the catalyzed resin is injected into the vacuum-pressurized mold, and then the part is allowed to cure.
- **Centrifugal molding** uses a spinning mold to form cylindrical pieces such as pipes and tanks. Gel coat is first applied to the sides of the mold. Then, catalyzed resins saturated with short fibers are sprayed into the spinning mold, layer by layer, until the desired wall thickness is achieved.

Additional supporting operations and important facets of fiberglass manufacturing that require environmental management include air filtration and ventilation, mixing, operations, chemical management and storage, finish operations (e.g., adding foam for insulation, lightweighting, structural support, upholstering, coating, painting, padding, carpeting and accessorizing), mold and equipment cleaning, solid and hazardous waste management, recycling and reuse of materials, and energy and water use.

Additional discussion of these and other fiberglass facility operations, including respective inputs and outputs, are discussed in the [Operations](#) section. Also, a number of pollution prevention opportunities for rigid fiberglass manufacturing are found in the [P2 Opportunities](#) section.

There is a national demographic trend for fiberglass fabrication in the United States. Across the country, 1566 fiberglass manufacturers are collectively regulated by the National American Industry Classification System (NAICS) codes. The associated codes for spraying and molding include codes 326191, 326199, 337125, 423390, 424310.

Standard NAICS Codes associated with Fiberglass Fabrication

Code	Description
326199	All Other Plastics Product Manufacturing
423390*	Other Construction Material Merchant Wholesalers
424310*	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers
337125*	Household Furniture (except Wood and Metal) Manufacturing
326191	Plastics Plumbing Fixture Manufacturing
326199	All Other Plastics Product Manufacturing

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