

Cleaner Air and Better Bathware



New standards turn fiberglass-reinforced bathing products from a commodity into a specialized product with a wide range of quality levels.

Introduction

For years, fiberglass reinforced baths and showers have been perceived as “commodity” products. Of course—as with any product—there have always been quality differences between brands. Nevertheless, the manufacturing methods employed and the materials used have been roughly similar.

That’s all changed. As of April 21, 2006, manufacturers of reinforced plastic composites are required to meet hazardous air pollutant emissions under new “maximum achievable control technology” (MACT) standards published by the U.S. Environmental Protection Agency.

What do clean air standards have to do with a bathtub or shower?

Quite a lot. In fact, the ways that manufacturers respond to the standards will create a vast difference in quality and product consistency between brands.

That means customers must now become even more aware of what they’re buying. Failure to know how a company makes its products could result in poor buying decisions.

For builders, that can mean costly callbacks, reinstallations, and a damaged reputation. For a consumer, it means headaches or having to live with a poorly made product.

What do emissions have to do with a bathtub’s quality?

In a word, *styrene*. A vital component of the fiberglass reinforcement technology, styrene is released into the air during the manufacturing process. While health and environmental concerns have not been confirmed (styrene quickly breaks down in the atmosphere) the EPA’s precautionary measures now require a company to capture and control 95 percent of its styrene emissions.

In order to comply with the new MACT standards, a manufacturer has several options:

1. Ignore regulations and face fines and possible plant closures.
2. Reduce the amount of styrene used in the creation of its products, resulting in a weaker product.
3. Use lower-emitting, less-effective resins. This option requires the use of more reinforcing material.
4. Invest in expensive pollution control technologies that will capture and eliminate styrene. This option allows a manufacturer to create products using the most effective and strongest formulation of materials resulting in the highest quality products.

Anatomy of a Bathtub.

To see how the industry is changing, it’s essential to understand the basic manufacturing process. While procedures vary among manufacturers, the following steps reflect how most manufacturers create a bathtub.

1. First and foremost, a high-quality product begins with a high-quality mold. Any imperfection, even those the size of a pin-point, will clearly show on the smooth, high-gloss surface of a gel coat product. These imperfections usually result from poor maintenance, inadequate inspection or the use of inferior molds.
2. A durable gel coat surface is sprayed evenly on the mold and allowed to cure.
3. A barrier coat layer is sprayed on the gel coat for stability and to help reinforcement layers adhere.
4. A layer of fiberglass reinforcement is applied, then rolled to eliminate air voids and to interlock the fibers for greater stability.

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“Manufacturers who do not install expensive capture-and-control emissions equipment must reduce the level of styrene they use in their resin formula. The result is a less durable product.”

5. A second fiberglass layer is applied to specific high-stress areas of a product (floor, apron, edges) and rolled.
6. Reinforcement is adhered for added strength.
7. A final layer of fiberglass encapsulates the unit before it is removed from the mold.
8. Products then go through a finishing process that includes cosmetic and structural inspections, trimming, and the application of grab bars, drains and other accessories.

There’s the bath; where’s the styrene?

In the manufacturing of bathtubs and showers, styrene is critical to the fiberglass reinforcement process.

Fiberglass exists in fibers thinner than a spider’s web. To give it a workable form, it is encapsulated in a binder and formed into strands the thickness of a thin rope.

For the fiberglass to work effectively, the encapsulating binder must be dissolved to release the fibers.

Applied by a chopper gun/sprayer, the fiberglass strands are shredded into specific lengths and blended with a composite resin. Styrene in the resin immediately dissolves the binder, exploding the fibers into the resin. The interwoven fibers are locked into place, giving a product its strength and durability.

If not enough styrene is added to the resin, the fiberglass sheathing will not fully dissolve. The resulting material will be weaker and may not meet bathware standards set by the American National Standards Institute (ANSI). These require that a shower side wall deflect no more than a quarter inch when 25 lbs. of pressure is applied. In the floor of a shower or tub, the same deflection limit applies when 300 lbs. of pressure is applied.

The issue in a nutshell? Without enough styrene in the product formulation, a product will not easily meet ANSI standards.

Manufacturers who do not install sophisticated capture-and-control emissions equipment must reduce the level of styrene they use in their resin formula. The result is a weaker product.

Other manufacturers may turn to lower-emitting resins that do not release the fiberglass strands as effectively. As a result, more resin and fiberglass are required to provide the strength a shower or tub needs to pass national standards. The result is a thicker, bulkier product, but one that is not necessarily as strong as one that’s created with an optimum level of styrene and less overall material.

A thicker and heavier product is not a higher-quality product.

Without understanding the process, a customer might conclude that thicker, heavier products would be sturdier and of higher quality than a thinner one. And the higher price that results when more material is needed may also be perceived as quality.

But it’s not true. It just means a product is thicker, heavier and more expensive.

Capture and Control Technology.

At this time, few manufacturers have the resources to solve the issue with capital improvements. In order to capture styrene in a plant and properly eliminate it, a company must invest millions in all its plants.

However, those who do are able to offer a higher-quality fiberglass reinforced bathing product. And because these products are no longer an identically produced commodity, customers will begin to see a wider range of quality levels and prices in the market.



For professionals, choosing quality products will result in easier installations with reduced repair and replacement costs.

The Lasco Response: Consistency is key; Quality is paramount.

Through its commitment to quality products and corporate citizenship, Lasco Bathware has invested more than \$20 million to renovate its manufacturing plants. This investment provides two distinct advantages that enhance product quality and ensure dependable consistency.

1. Lasco has invested more than \$2 million in each of its 8 manufacturing plants across the country in response to MACT standards. The change not only meets new clean air standards, it exceeds them.

By effectively gathering styrene and burning it in a thermal oxidizer, Lasco has reduced styrene emissions by approximately 250,000 tons per year.

Using the captured and incinerated styrene as a fuel, Lasco has also reduced its dependence on other energy sources. Lasco's response allows the company to use the optimum formulation of styrene in its fiberglass reinforcement process, resulting in the greatest possible strength, durability and overall quality of its products.

2. Lasco has also begun using state-of-the-art robotic technology in its manufacturing process. The effect is greater product consistency and dependable quality.

While there's a great deal to understand about the manufacturing of a bathing product and how a company deals with emission standards, that knowledge is essential for anyone interested in choosing the right product.

The other option is to remember just two words: Lasco Bathware.

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