The Pros and Cons of Styrofoam

Styrofoam By Any Other Name...

We know it as Styrofoam, but its technical name is "foamed polystyrene". However, whatever name it goes by, foamed polystyrene has been hailed by some as a technological marvel and by others as an environmental menace.

What is the truth behind this everyday product, used for so much of our packaging? As with most things, the issue is not always clear cut.

How it's Created, Where it's Used

Polystyrene is made from styrene, which can be found in naturally occurring substances. Synthetic styrene, on the other hand, is made from petroleum byproducts. Polystyrene is used in auto parts, computer housings, boats, and many other products.

In the early 1940s, it took an accidental discovery to create a variant of polystyrene known as *foamed polystyrene*. Ray McIntire of the Dow Chemical Company was looking for a flexible electrical insulator when he created foamed polystyrene, which is 30 times lighter than regular polystyrene.

Blowing gases into heated polystyrene produces foamed polystyrene. The result is a product that is over 95-percent air, making it a poor conductor of heat. This also makes foamed polystyrene an effective and popular material for such things as beverage cups and insulation.

Until the 1990s, chlorofluorocarbons (CFC's) were used as a blowing agent in the manufacturing process. However, because the breakdown of CFC's causes destruction of ozone in the stratosphere, CFC's are no longer used in the manufacturing process.

Biodegradation

Foamed polystyrene does not biodegrade significantly, but it is also not a major part of the waste stream. According to a U.S. Environmental Protection Agency report, polystyrene food service packaging, which includes foamed polystyrene, accounts for less than one-half of one percent of municipal solid waste (by weight).

While some foamed polystyrene material is reused (packaging peanuts), most material used for food or beverage containers are one-use materials. Recycling is technically possible, but it is not economically justifiable at this time.

Because almost all material in landfills degrades at an extremely slow rate, the fact that foamed polystyrene does not break down rapidly is not a significant problem when it is disposed of in this manner. When the material becomes litter, however, it *does* represent a significant environmental problem.

Leaching

Very small amounts of styrene can leach out of polystyrene products and into food, especially under high heat. Therefore, avoid using foamed polystyrene containers for heating food, especially food high in vitamin A, which can add to the leaching effect. This includes such food as cheese pizza, carrots, and instant oatmeal. Hot liquids, especially tea, may also cause some leaching. Very high doses of styrene act as a neurotoxin.

The use of Styrofoam or other foamed polystyrene products is a personal choice. If used properly, it is an economical, sanitary product, with low environmental risks. However, **used improperly**, it can quickly become an unsightly environmental nuisance and does have potential health risks.

Advantages of Using Foamed Polystyrene

- Sanitary product for one-time food and beverage use
- Low cost of purchase
- Manufacturing process not necessarily more harmful than the process for paper
- Biodegradability not an issue in modern landfills

Disadvantages of Using Foamed Polystyrene

- Non-biodegradable in the environment
- Made from non-renewable petroleum products
- Chronic, low-level exposure risks undetermined