

Chapter 7

POLLUTION CONTROL AND SAFETY

Waste products that are produced during the manufacture of Polystyrene:

Polystyrene manufacture is a relatively clean process. Small volumes of liquid and gaseous wastes are generated and these are treated within the plants. Waste polystyrene generated during production is reprocessed or sent to a recycler. Polystyrene manufacture is a relatively clean process. Small volumes of liquid and gaseous wastes are generated and these are treated within the plants. Waste polystyrene generated during production is reprocessed or sent to a recycler. This is a Most Energy-Efficient Packaging Material. Polystyrene is Safe, Hygienic Polystyrene and the Enemy of Bacteria

Ease of disposal:

According to the U.S. Environmental Protection Agency (EPA) in the 1999 update of the "Characterization of Municipal Solid Waste in the U.S." report, less than one percent (about 0.6 percent) of solid waste disposed of in the U.S. is polystyrene packaging - including both food service packaging (cups, plates, bowls, trays, clamshells, meat trays, egg cartons, yogurt and cottage cheese containers, and cutlery) and protective packaging (shaped end pieces used to ship electronic goods and loose fill "peanuts").

The disposal of polystyrene is managed safely and effectively through the integrated system advocated by the U.S. EPA, which includes: Source Reduction, Reuse, Recycling, Waste-to-Energy Recovery, and Landfilling.

Polystyrene safe to use in contact with food :

For more than 40 years, polystyrene has been in widespread use as a hygienic material for protecting and preserving food. In fact, one-reason polystyrene single use food containers are so widely used in hospitals and other sensitive environment is that

they are significantly more hygienic than the alternatives. Polystyrene does not harbour bacteria, which is a major concern among health specialists.

A recent American study shows that 1 in 7 reusable dishes harbour a level of bacteria which exceeds US health standards. In contrast, no disposable food service items exceeded the standard.

Foam Polystyrene – Presence of CFC's:

Extruded foam polystyrene produced in for meat, chicken and vegetable trays and takeaway food containers, does not use CFC blowing agents. Producers converted away from CFC's in 1989 and now operate on recycled carbon dioxide or hydrocarbon gases. Expandable or bead polystyrene (EPS) such as in produce boxes has always used a hydrocarbon blowing agent.

Reuse:

Reuse, the practice of utilizing polystyrene products in the same form, is important not only because it delays the final disposal of a product, but also because it reduces the manufacture and purchase of new products. As a result, reuse prevents waste. Nearly 30 percent of polystyrene loose fill (some times called "peanuts" because of its shape) is used again, making it one of the most commonly reused packaging materials in some retail locations. For mailing services, the reuse rate of loose fill is as high as 50 percent. The successful application of reused loose fill polystyrene reduced the demand for virgin polystyrene by 25 percent in 1997 alone and, to this day, continues to directly reduce waste.

Other packaging and disposables commonly reused by the polystyrene industry include: pallets, insulated shipping boxes, test tube trays, auto part trays, ice chests and coolers.

Recycling:

The recycling of polystyrene protective packaging and non-packaging polystyrene materials, (such as audio/visual cassettes and agricultural nursery trays/containers) has

increased dramatically during the last decade and there has been a decrease in the amount of polystyrene food service packaging recycled during this period. Non-food service packaging is not contaminated with food and other wastes as is food service polystyrene packaging, and therefore is more cost-effective to recycle. Presently, food service polystyrene packaging is generally not recycled because it is not economically sustainable. It is important to note that because of unfavorable economics, no other post-consumer foodservice disposable material, including paper and paperboard, is recycled in a measurable way.

Before 1988, there was essentially no recovery of post-consumer polystyrene for recycling, but as of 2000, just twelve years later, more than 397 million pounds of polystyrene packaging were recycled. A portion of this material came from durable polystyrene products such as coat hangers, compact disc "jewel cases," single-use cameras and agricultural nursery trays.

Some companies that make protective packaging are collecting it back for recycling through the Alliance of Foam Packaging Recyclers. In addition, some makers of loose fill "peanuts" have set up a network of collection sites for reuse and recycling of their polystyrene products.

Products that have incorporated recycled-content polystyrene include: foam egg cartons, lunch trays, transport packaging, audio and videocassette cases, office supplies, and building materials.

Waste-to-Energy Recovery:

In many overseas countries polystyrene is recycled through incineration of municipal waste for energy recovery. The burning of polystyrene is no more hazardous than combustion of many natural organic materials. Polystyrene consists solely of carbon and hydrogen. When combustion is complete, water and carbon dioxide are given off, leaving trace levels of ash, the same combustion products as from paper or wood. While some polystyrene in medical and municipal wastes is currently incinerated in Australia, the energy recovery option has not yet been implemented.

When incinerated, polystyrene produces energy, which compares favorably with coal and oil. Because of its high fuel value, polystyrene in properly designed incinerators helps to burn wet garbage more efficiently, and maintain the high burning temperatures necessary for safe combustion.

The incineration of plastics can also generate energy and this potential is already being harnessed in some overseas countries, particularly in Western Europe, The United States and Japan.

Land filling:

While recycling and reuse continue to grow in popularity, most of the waste in this country still goes to landfills. People assume the waste inside a landfill biodegrades. But the fact is that very little - not paper, not polystyrene, not even food waste - degrades in a meaningful way.

Polystyrene is effectively and safely disposed of in landfills. Modern landfills are designed to protect the environment from the liquids and gases produced during the very slow breakdown by reducing the exposure of garbage to air, water and sunlight - conditions needed for degradation. Therefore, by design, modern landfills greatly retard the degradation process to reduce the by-products that might otherwise contaminate groundwater and the air.

Preventing Litter :

The polystyrene industry cares about the environment. A widely held misconception is that litter is a problem caused by specific materials themselves rather than aberrant consumer behavior. The reality is that some people improperly dispose of materials by littering. Littering is a matter of behavior; people who discard materials into the environment usually do so because they don't think or don't care. Attributing the litter issue to one particular packaging material does not solve the problem because another type of packaging will take its place as litter unless behavior changes. To address concerns effectively, the polystyrene industry supports organizations such as Keep America Beautiful, that work to prevent litter across the country.