

Recycling Foam Products

Scientists created expanded polystyrene foam, also known as EPS, in the 1940s. You may know EPS as “styrofoam,” but that is actually the brand name of polystyrene foam developed by the Dow Chemical Company. It’s like how we often refer to facial tissues as “kleenex” or cotton swabs as “q-tips,” even though those are specific brands.

We see foam products everywhere, from take-out containers to coffee cups to fishing coolers. Folks often ask us, is styrofoam recyclable, and where can I take it?

Symbolized by PS 6, polystyrene foam is a type of plastic made from styrene, a liquid hydrocarbon, and about 95 percent air. It makes an excellent insulator for homes, coolers, and cups due to its heat-resistant makeup. The lightness of polystyrene foam also makes it great for packaging and floatation devices like life vests and rafts.

Polystyrene foam is estimated to take up about one-third of the world’s landfill space. Not only does it take up significant space, but it also is challenging to collect and recycle and is dangerous once it becomes litter. Polystyrene foam is light and easily breaks apart, sending pieces across the landscape and into waterways if it doesn’t find its way into a secured trash bin.

These foam products never biodegrade naturally. Over time, polystyrene begins to disintegrate into smaller pieces which can be mistaken for food by marine animals and birds. These small pieces of plastic can get stuck in these animals’ digestive tracts and cause them to starve. It could even find its way up the food web and end up on your plate.

Burning polystyrene foam isn’t a good solution, either. When burned, EPS produces toxic chemicals when not done in an efficient incinerator and can create air pollution that harms people, wildlife, and the environment. Polystyrene foam has been determined to be “reasonably anticipated to be a human carcinogen” by the National Academy of Sciences.

Eek, now what? Luckily, polystyrene foam is recyclable. However, it is difficult and expensive to collect curbside, which is why it isn’t accepted in your bin. EPS tends to break apart, get stuck to other materials, and is easily picked up by the wind. EPS contaminated with food takes an even longer process to clean and recycle. It is also worth noting that polystyrene foam cups and plates must be made from new, virgin polystyrene.

It takes an extensive process called densification to recycle polystyrene foam. Excess air is removed, and the product is melted at high heat to produce pellets. EPS can also be densified using limonene, a natural solvent made from orange peels. Limonene can be reused after this process. Thermal recycling is another process to recycle EPS using municipal waste-to-energy incinerators. This process produces nothing but carbon dioxide and water vapor. Recycled foam can make products such as picture frames, heels for shoes, plates, cutlery, and new foam products.