

Biopolymer Use in Bottles:

Critical mass levels still needed for system-wide reclamation.

In order to sustain North America's postconsumer plastic bottle recycling industry, APR encourages the production of streams of baled bottles that do not contain contaminants. APR has model bale specifications for two commercially recycled plastic bottles, PET and HDPE, which provide guidance on bale purity. Currently, PET and HDPE bottles represent about 95% of all plastic bottles used in the United States. Bottles made of resins other than PET and HDPE are often contaminants in bales of PET and HDPE bottles.

Until critical mass levels are achieved that allow for efficient system-wide reclamation, biopolymers may be an undesirable inclusion from a technical standpoint in both PET and HDPE bottle bales as are many bottles coded 3 through 7. Until the volume of biopolymer bottles in the commercial stream reaches critical levels that allow for economical, independent recycling operations, individual reclaiming operations are likely to be highly selective in their interest in receiving biopolymer bottles. Some reclaimers may find that processing some biopolymer bottles to sell recycled biopolymer plastic meets their business plans.

Automatic bottle sorting equipment based on near infrared spectra can distinguish some biopolymer bottles from PET and HDPE bottles and separate the biopolymer bottles. The economics of such sorting is enhanced by high throughput and a substantial presence of the minor material, the biopolymer. Manually sorting biopolymer bottles that appear visually similar to PET or HDPE bottles containers would be problematic with regard to efficiency and accuracy.

To date most commercial biopolymers have a density greater than 1.0 gram per cubic centimeter. Standard plastics recycling operations should separate biopolymers from HDPE, but not from PET, based on specific gravity. Biopolymers like other traditional polymers with a density greater than 1.0 g/cm³, should not be a technical issue to HDPE reclaimers, but would create a yield loss with some economic impact. Hazing of clear PET resin is expected if the concentration of at least some biopolymers exceeds approximately 0.1%. Biopolymers could be a technical problem and economic impact for PET reclaimers.

APR encourages all plastic bottle designers and decision makers to utilize the APR Design[®] Guide for Plastics Recyclability. APR continues to work with biopolymer manufacturers to identify and understand the impacts of biopolymers on the recycling of other bottle materials.

APR encourages discussions on one biopolymer, PLA or polylactic acid, be conducted with NatureWorks LLC, a PLA provider and APR member, to identify and understand the impacts of PLA on the recycling of other bottle materials. Visit NatureWorks' website: www.natureworkslc.com.