



# Bringing recycling and design together

Think about the expression “Design for Recycling.” What does it mean? For most people, it means designing a product, or an assembly, so that it can easily be recycled.

That often translates, for example, into using only one material, or possibly materials that are compatible with each other, and designing the product in a way that it is easy to take apart once the product has come to the end of its useful life - so that the individual components can be recycled or possibly reused, preferably in the same type of product they were used in the first time.

We hear about design for recycling especially when it comes to technical parts used in automotive and electronics. But it can also be applied to the packaging world: designing packaging that has high barrier without the need for multiple layers, for example, or using labels that are easy to remove or possibly in the same polymer as the container itself. Maybe even making caps and closures in the same polymers as the bottles.

But there is another way of looking at designing for recycling, one that is more appropriate for us in the world of PET bottles. What we mean here is more designing with recycling; that is, taking post-consumer recycled material, PCR, or RPET, and creating designs that make the best use of its particular properties.

Of course, in an ideal world, the properties of the RPET would be the same as those of virgin PET.

**We are getting very close to that situation with XTREME RENEW, the technology co-developed**

**by SIPA with Austrian recycling technology specialist EREMA, which takes flakes back to preforms in a single fully integrated process.**

But XTREME RENEW, with its innovative use of injection-compression molding technology for preform production, is not yet in widespread use. So we are having to contend with rPET that is often of a quality noticeably different from virgin PET, which may have to go through solid stating to get its viscosity back to the right level for preform production, and which most likely does not have the same water-white clarity as virgin PET.

So what can we do with this rPET to maximize its value? As more rPET becomes available, bottle design is undergoing a huge development, confirming itself as a vehicle for innovation for many companies in the sector. In recent months, for example, SIPA has brought to fruition an increasing number of design projects developed for rPET, overcoming major hurdles as it did so (see accompanying article).

SIPA's head of packaging design office, says: “For us designers, it is extremely challenging to work on bottle development projects in rPET. Constant dialogue with injection engineers, as well as the access we have to XTREME RENEW technology, are proving to be a fundamental support in taking these projects forward. The challenges from the market, however, are not lacking: for example, we need to turn the particular color of recycled PET to its advantage, this iridescent shade, which spans shades of grey to yellow and aquamarine green.”

There is also the challenge of working with customers and design agencies to find new materials and colors for labels and caps that can make packaging in rPET totally in tune with the circular economy, based 100% on recycle. And all the while we are waiting for harmonization in legislation across borders that will facilitate the use of 100% sustainable packaging based on PCR in food-contact applications.