

This photo shows what a bottle made from 100% r-PET looks like (left), the same bottle using AY 00015 at 0.03% (centre), and with AY 00201 with optical brightener 0.03% (right)

# Satisfying demanding environmental promises while keeping feet on the ground!

*When colours and additives come to the rescue*

MORE and more customers are demanding the optimum percentage of r-PET in their bottles, and if they are not yet on the market with 100% recycled packaging, they are already planning it.

REPI's global network develops and produces colours and additives in liquid form for plastics. The colour of r-PET varies a lot from supplier to supplier (and even from one batch to the next) and depending on the ratio of virgin and recycled PET used, the result can be anything from grey or pale yellow, to blue or greenish. The more recycled content the bottle has, the darker the end colour will appear.

Mechanical challenges when using r-PET include a drop in the Intrinsic Viscosity (IV) and wall thickness distribution, one the cause of the other. This happens because PET has already passed through several production processes that impact on its chemical composition and shortens its molecular chain. A drop in the IV is responsible for inconsistencies in the

moulding machine pressure, leading to uneven wall thickness

**REPI's IV enhancer additive boosts the mechanical performance of an r-PET bottle by increasing the IV level from 0,05dl/g to over 0,10dl/g**

**One single shade starting from two different r-PET**

and therefore to insubstantial packaging.

REPI has been studying and specialising in additives for PET recycling for many years and is today able to offer broad-spectrum support in the form of their range of 'Anti Yellow' (AY) additives and IV-enhancers. REPI's prototyping research and development laboratories mould preforms and bottles and experiment with colours and additives using r-PET pellets and flakes mixed in different percentages.

The AY range comprises different liquid additives able to balance the appearance of inconsistent material and makes it possible to regain brightness, as well as to correct a greenish or greyish tone.

REPI's IV Enhancer attracts and binds to the free oligomers in recycled PET, extending its molecular chain and therefore increasing the IV to the level of a virgin material.

### Besides additives, colours can be of help

Currently the trend is to reduce colour, or even to go transparent, but many brands are not ready to sacrifice the aesthetics of their packaging and their brand recognition. When a very dark r-PET is used, an Anti-Yellow additive may not be enough. For this, REPI has developed the Smoky or Fumè colour range that can give the packaging a premium and elegant look, masking the effect on colour caused by the r-PET. The Smoky or Fumè colour range is used at very low dosages (as low as 0,05%) so it does not impact the recycling stream because it is detected as a transparent light colour. The range goes from light amber to light blues, greys, aquamarine shades and even antique rose.

"Moving towards a circular economy is not simple, but solutions are already in place to help as much as possible to find how to be sustainable from a branding and aesthetic point of view as well as from a technical perspective," says REPI. "Colourants and dedicated additives are available to make r-PET look and work even better. Take advantage of this opportunity, because after all... how would the world look without colour?"

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