Packaging operations that are concerned about the environmental impact of their bottles and labels, can increase the recyclability of both by making sound material choices. *Milk & Juice* takes a look at how the industry can reduce its carbon footprint.

Encouraged by eco-conscious retailers and end users, packaging suppliers are seeking alternative materials with less impact on the environment. Often, they are asked about the recyclability of the packaging they manufacture.

While plastic recycling experts’ opinions vary, they generally agree that packagers have three opportunities to improve the odds that removed label material will be recycled, instead of landfilled. Packaging operations can choose label materials that have high value to recyclers; they can specify adhesives optimised for recycling; and packagers can ask for inks and varnishes that will not contaminate recycled plastic.

**Labels**

Compatibility with the container recycling processes is important. In some cases, this involves choosing labels that separate easily from their containers. In other cases it means choosing labels that can be recycled along with the container.

Using materials that sink in water, such as polylactic acid (PLA), polyethylene terephthalate glycol (PETG) or polystyrene (PS), is not good for PET recycling. On the other hand, sinking labels are fine for high-density polyethylene (HDPE) bottles, but HDPE labels are even better.

When it comes to labels, especially those on pressure-sensitive stock, it is important to examine all aspects of the recycling process. This includes how the recycling system works with labels; how label converters and
Packaging engineers can help labels move through the recycling stream efficiently; and, finally, how it may be possible to create a label designed for recycling right from the start.

By boosting the market value of reclaimed label material, packagers can help create an economic incentive for recyclers to keep that material out of landfills. If all labels in the market place were on polyethylene terephthalate (PET) film substrates, for example, the industry would have a compelling volume of labels to recover.

It is possible to create a “recyclable” label. The key to increasing a label’s recyclability lies in making the appropriate material, adhesive and ink-and-varnish choices. Packagers should choose materials that have high value to recyclers, specify adhesives that facilitate label removal and do not contaminate recycled plastic, and choose inks with a lower environmental impact.

**Adhesives and inks**

Adhesive selection is another critical factor. While it is generally presumed that adhesives will “gum up” the recycling process, there are adhesives that promise greater compatibility with current recycling processes. There is great value in adhesives designed to be washed off containers with hot water. Potentially, they could allow for shorter wash times, thus increasing throughput at the recycling plant, which would boost the value of the material to the recycler.

Washable adhesives need certain performance characteristics to add potential value to their recyclability. Adhesives should release from the PET or HDPE surface at 70°C to 80°C, with caustic and surfactants present. Ideally, the adhesive stays with the label. Adhesives that do disperse, must not redeposit on the washed PET or HDPE flakes. Label inks and varnishes that contaminate the wash...
water during processing, can negatively impact on both the label and the container’s recyclability.

Wine leads the way
The international wine industry has led the way in moving towards more eco-friendly packaging. Mass producers of wine have succeeded in trading corks for screw caps, even for some more expensive bottles, without ruffling too many feathers.

New receptacles are now testing the limits of such open-mindedness. Boisset Family Estates, an American importer of French wines, has begun offering wines which come in a rounded, octagonal one-litre Tetra Pak with a metallic finish. According to Boisset, the carbon footprint of this alternative packaging is little more than a tenth of that of conventional bottled wines.

Arniston Bay, a South African producer, has also begun to eschew the glass bottle in favour of pouches, which have around one-twentieth of the weight and produce one-fifth of the emissions. Such packaging does not tend to be well received in South Africa, where down-market “papsaks” were banned because of their purported contribution to alcoholism and associated social ills. But Arniston Bay’s pouch is the subject of a marketing blitz in Britain.

A pouch ahead
A new milk packaging initiative by a leading UK retailer designed to cut package waste, is just one of many green container innovations being carried out by dairy processors.

A spokesperson for the industry-based association, Dairy UK, says that many processors are now working with consumers and retailers to reassess how they are packaging and transporting their products. The claims come after retail giant, Sainsbury’s, recently announced a trial scheme in 35 of its stores to sell milk in recyclable bags, before a potential wider roll-out across 500 shops at the end of the year.

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The packaging, which was designed in conjunction with UK-processor Dairy Crest, has been devised in a bid to cut milk-packaging waste by 75%, amidst growing concerns over the environmental impacts of dairy food production.

Consumers insert the two-pint recyclable plastic bag into a reusable plastic jug and the milk is then ready to be poured. Once emptied, the manufacturer claims that the bag can then be recycled with other plastics at a consumer’s home, or deposited in special bins at its stores.

As part of a more industry-wide focus, Dairy UK claims that it is also working with the Waste and Resources Action Programme to find additional means to cut food waste including increasing product longevity and portion sizes. M&J