Beverage cartons: recycling through the PMD circuit

Used beverage cartons are collected through the PMD circuit. All of the materials that they contain are recovered and reused in a wide range of products. The sorting and recycling processes are continuously being fine-tuned.

**Sorting and separating to prepare for recycling**

**Collection.** Beverage cartons are collected in the blue PMD bags together with plastic bottles and flasks, and metal packaging. They are also collected at container parks.

**Sorting.** These different types of packaging are then sorted in various sorting centres. Beverage cartons are usually automatically separated from the other fractions either by eddy current or through Near Infrared (NIR) optical sorting. They are then compressed into bales of about 500 kg.

**Processing.** As with old paper, beverage cartons are recycled in paper mills. The cardboard fibres are separated from one another in a pulper (large rotating drum or tank filled with water). This also separates out the plastic and aluminium layers. The paper pulp obtained is then passed through several purification stages before being transformed again into new paper products. The plastic and aluminium are also recovered by the industry.

**Fibres for paper, additives for cement**

**Recycled cardboard** is used in the paper industry to manufacture boxes, cardboard covers, and dust-jackets, as well as kitchen rolls, toilet paper, paper bags, egg boxes, and napkins. ‘Pulp from recycled beverage cartons is very useful for the paper industry’ stresses Magda Buelens of Recarton. ‘This is because beverage cartons only contain new wood fibres. This enables to obtain long-fibre pulp after recycling.’

Such pulp gives recycled products additional robustness and often replaces virgin pulp in applications requiring superior quality.

**Plastic and aluminium** can be used in the cement industry. Plastic is used as a source of energy for the ovens; aluminium is a catalyst for the production of cement.
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A stable recycling circuit

In Belgium, approximately 77% of all beverage cartons sold are recycled through the collection of PMD. This figure can still be improved through systematic information and communication campaigns.

The available recycling capacity is presently sufficient for the beverage cartons that have been selectively collected. The majority of beverage cartons collected in Belgium are processed by a paper mill located in Germany, close to the Belgian border. This paper mill transmits residual materials — plastic and aluminium layers — to a cement factory. Other European, Asian, and American paper mills often recycle plastic and aluminium layers differently, for instance:

- by transforming them into granulates which, once heated, can be pressed into a variety of products (components for automobiles, pallets, posts, et cetera).
- by drying the material, then fragmenting it and pressing it into plates that can be used in roof constructions, among other products.
- by pyrolysis: the material is brought to a sufficiently high temperature for the plastic to be transformed into gas that can be used as an energy source in the paper manufacturing process. This temperature, however, must be controlled so that the aluminium remains intact and can be remelted for use in various products by the aluminium industry.

Improving the environmental balance further

Beverage cartons that have reached their end-of-life are perfectly suited for recycling (see www.pack4recycling.be). Nevertheless, the sector is continuously pursuing efforts in making further improvements in the environmental balance. Present research primarily focuses on innovative recycling techniques for polyethylene and aluminium, as well as in the optimization of existing technologies.

‘Once recycled, beverage cartons provide long-fibre pulp for robust paper products and certain applications requiring superior quality.’

Magda Buelens, Director of Recarton

Pack4recycling.be

The Pack4recycling.be Website provides additional information on the recyclability of the various types of packaging. You can test whether your packaging will be recycled or not by using a decision tree. www.pack4recycling.be

Recarton and ACE

Recarton is an independent organization. Fost Plus calls upon Recarton as an expertise centre for the collection and recycling of beverage cartons. www.fostplus.be

ACE Belgium is the Belgian branch of the Alliance for Beverage Cartons and the Environment, a cooperative effort of European paper producers and beverage carton manufacturers. www.ace.be