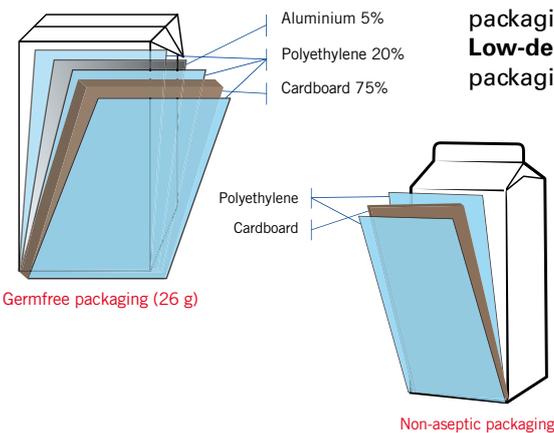


# Beverage carton

## What is a Beverage Carton Made of?

Beverage (or liquid food) cartons are made of 2 or 3 different materials assembled in 3, 4 or 6 layers of different thickness depending on the final properties aimed at. E.g. long shelf-life UHT products will be packed in 6-layer cartons whilst pasteurized products – fresh produces for rapid consumption – will be packed in 4- or even 3-layer cartons – e.g. milk, cream, chocolate drinks, fruit juices, etc.



**Cardboard** (75%) provides for the resistance and stiffness of the packaging.

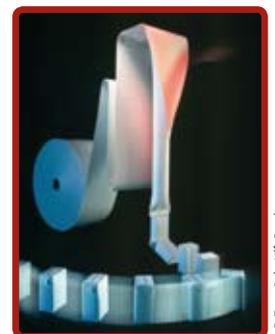
**Low-density polyethylene (LDPE)** guarantees the tightness of the packaging against bacteria, fat and humidity; it is used as a binder between the different layers and allows for the tight closure of the package after heat sealing.

**Aluminium**, although it is only  $6.35\mu$  or  $0.00635\text{mm}$  thick, i.e. half as thick as domestic aluminium foil or even the tenth of the thickness of a hair, is an excellent barrier against air (oxygen), light and bad smell; it therefore does a great job preserving the taste of food and its vitamin content.

## How is a Beverage Carton Manufactured?

Cardboard comes from timber, polyethylene from oil and aluminium from the aluminium ore called bauxite.

In a production plant, cardboard is printed then flat rolled with different aluminium films or sheets depending on the type of packaging required. The coils produced are then sent to the final packager – dairy plant, fruit juice producer, etc – who will use the specific material to process the coils into end products, i.e. into thousands of filled and sealed containers ready for consumption.



## What are the Advantages of Beverage Cartons?



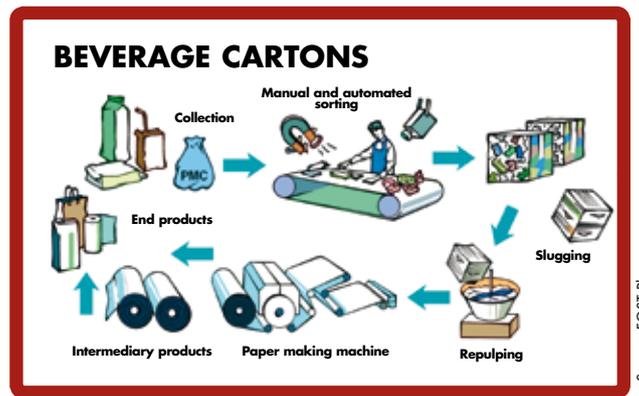
Beverage cartons are light, user-friendly, unbreakable, and cost-effective in terms of transport and storage, because it is delivered to plants as coils – 2 trucks = 1 million beverage cartons – which limits sound and air pollution. Additionally, at the time of discarding, beverage cartons can be flattened easily and take less space in the bin.



## How are Beverage Cartons Recycled?

In 2006, nearly 700 tons of beverage cartons were collected in the Grand Duchy of Luxembourg and shipped to paper mills to be recycled.

After basic grinding, the product is introduced in a pulper filled with water, which will mix it. The cellulosic fibres of the cardboard will fall apart while the layers of polyethylene and aluminium separate. Cellulose suspended in water then goes through a meshed filter whilst the pieces of plastic and aluminium are stopped by the mesh. Cellulose is then recycled and turned into recycled paper. One ton of recycled beverage cartons generates two tons of savings in timber. As for the mix of polyethylene and aluminium, the elements can be separated, in which case every component will follow its own recycling path.



## What can be Manufactured with Recycled Beverage Cartons?

Cellulose is a raw material that can be used to make tissue, toilet paper, napkins, brown paper, tissue paper, corrugated board, etc.



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The plastic-aluminium mix can be recovered in energy. In cement works, in addition to using the mix for energy purposes, it also provides the aluminium that is essential to the making of clinker that will be used to make cement. Heated, the mix goes soft and can be reprocessed to make pallets, flowerpots, buckets, or car parts.

The waste generated when making beverage cartons is sometimes recycled in chipboards called Tectan® that come in different thickness. To do so, waste is ground, compressed and heated at 170°C. Polyethylene melts and binds the chips together. Once cooled the product is a watertight shiny pressed panel, which can be used like timber to make furniture for instance.