

Beverage container recycling solutions: good for entire supply chain

Local fibre-based beverage carton suppliers continue to pursue stand-alone recycling options in Australia and New Zealand, aiming to deliver sustainable solutions that are suited to the local market. Their efforts are set to deliver for the producers and their brand owners, and the entire recovered paper supply chain.

Whether it is aseptic packaging or gable-top cartons (or other forms of coated board), and regardless of the region, global manufacturers and suppliers are all active in seeking the right recycling solution.



An observation *IndustryEdge* can share is that ‘the right recycling solution’ for a particular market is

largely dependent on the size of the market. Where populations are large and the volume of used beverage containers and other coated boards is high, there are more options for recycling. The caveat always being that there must be collections, and the economics of sorting and handling also have to work.

European recycling developments: the larger volume option

The 2020 announcement that **Tetra Pak** and **Stora Enso** are now actively and jointly pursuing a used beverage container recycling solution for Central and Eastern Europe created quite a level of interest across the global industry, including locally.

The companies will use an existing Stora Enso mill in Poland, building a 50,000 tpa intake plant to separate fibre from poly and aluminium (the foil from aseptic packaging). Stora Enso would retain the fibre and Tetra Pak would ensure the poly and aluminium are recycled.

Why scale matters

Scale really does matter in these developments. Our latest estimate is that the Australian market for all liquid packaging board grades is around 55,000 tonnes per annum, as we [outlined here](#), in last month's edition of Pulp & Paper Edge.

We base this on our assessment of the imports of materials at various stages of conversion, including some pre-converted volumes, ready to be filled and used. Note that this estimation excludes hot and cold cups that are imported pre-converted, despite them having a similar material composition.

Our estimation, based on industry guidance and detailed trade data examinations, is that total supply in 2019-20 was made up of around 26,000 tonnes of aseptic containers and approximately 22,000 tonnes of gable-top containers. Most of this combined 48,000 tonnes is cartons of various types. An additional 3,000 to 5,000 tonnes of material is used in other applications, like food service 'pouches' and some industrial applications.

The important point is that a recycling solution requiring 55,000 tonnes per annum of feedstock will not be viable in Australia.

Relative recovery rates

In Europe, the calculated recycling rate for used beverage containers alone is 51%. The assessed Australian recovery rate is probably between 40% and 50% currently. The uncertainty comes because not all of the volumes are easily assessed.

There are of course pre-consumer volumes (offcuts, over-prints, spoilage etc). These are held by the producers, importers, converters and brand owners.

Post-consumer volumes are disposed of and collected in a range of locations, some easy to measure, others less so:

- Some post-consumer volumes are collected through **container deposit schemes** (CDS). These are easily measured;
- **On-site separated collections** in locations like schools and hospitals. In theory, these are also easily measured;
- In many council areas, used beverage containers are placed into **kerbside comingled** collections from households and small businesses. These volumes are very difficult to assess, because they are difficult to separate from the mass of other materials;
- **Landfill** receives the residual volume, with many councils and their recycling supply chains having no specific solution for beverage containers.

From comingled collections, there is only limited sorting. The target for that sorting is rarely – if ever – fibre-based beverage containers. For specific sorting and separation to become viable, there has to be a local recycling solution, providing the ‘pull through’ for separation and sorting to increase.

There is no doubt the fibre in beverage containers is valuable. That is the case for all fibre, but especially so in this case because almost all the fibre is virgin and has not been exposed to liquids or foods – that role is played by the polymer coating.

What are the recycling options?

Traditionally, paper and fibre-based packaging is recycled back into paper and board. With their polyethylene and foil layers, many beverage containers are difficult to handle in those paper and board recycling processes. Despite the quality of the fibre, for that reason, recycled paperboard manufacturers do not prefer used beverage containers.

There are pulping options that would allow for all fibre to be reprocessed, but the equipment is not

currently in operation in Australia.

In the absence of volumes and scale like that being considered by Stora Enso and Tetra Pak in Europe (50,000 tonnes of beverage containers), the dedicated repulping option is not viable. The output of that type of facility would be a recycled fibre product, ready for use in manufacturing any of a range of paper products.

What are the alternatives?

Without the option of 'getting to the fibre', recycling options for beverage containers have to focus on whole of carton recycling. A range of board products – cartons shredded and pressed under heat – are the main options under consideration. Their properties are similar to many other building product boards (like plasterboard, medium density fibre board and oriented strand board), but their moisture management capacities may actually be better, at least in some applications.

The advantage of the board products is they can be manufactured in relatively small volumes, consistent with the smaller quantities of feedstock available.

It is these products that are actively being considered in the relatively small Australian and New Zealand markets. These are very positive developments, with a range of other fibre types – think of other coated boards – potentially suitable as additional feedstock for the same processes.

Strategic importance cannot be under-estimated

Recycling solutions are rapidly becoming more locally focussed. Whether the bans on imports (eg. China in 2021) or on exports (eg. Australia in mid-2024), the proposition is fast becoming 'you use it, you recycle it'.

That context is key to the industry efforts to recycle fibre-based beverage containers. The producers in the sector are leading the way locally, just as the European developments indicates is the case elsewhere in the world. Their efforts are providing guidance to other fibre sectors with material that is otherwise more difficult to recycle back into paper or paperboard.

Because the solutions under consideration are smaller scale, they provide pointers to other sectors that also have small volumes of material, for which a recycling solution is needed. That includes the related poly-laminated cup stock products and some other grades of laminated fibre-based boards.



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