

# BUILDING BRIDGES ACROSS BORDERS

The newly built Filao plant is setting new standards for bottle-to-bottle recycling within a 150km radius. **Dominique Huret** reports from the site as it opens its doors for the first time

**B**elgium has taken a significant step towards sustainability with the opening of the country's first integrated recycling centre dedicated to PET bottles. Located in Couillet, Charleroi, the Filao plant is bringing circularity to a country that was already delivering high household collection rates but, until now, was mostly transporting the material over the border for recycling.

The new initiative is a collaboration between waste management firms Veolia and Fost Plus, and bottled water company Sources Alma. When Pierre Papillaud took over Sources Alma – formerly Roxane – in the early 1960s, he was considered deeply aware of the environmental responsibility that comes with putting bottles on the market. The French company was also an early adopter of PET bottles at the expense of PVC in 1992, and so it was perhaps not a surprise that the company joined forces with Veolia to answer Fost Plus's call for tender for a new PET recycling facility. Two years on, and Filao is now operational.

At the official opening of the Filao plant, the company's chairman of the board Damien Colette goes into further detail.

"We signed the contract and got the bank loan in December 2020, and Fost Plus allowed us a mere two years to build it from scratch, with the latest technologies and ultra-precise specifications," says Colette. "Veolia was also on board and our combined expertise allowed us to meet the €45 million [\$48.5m] project by the assigned deadline."

The project included the construction of several separate and adjacent processing buildings, including four halls, a PET bottle bale storage unit, an administrative office unit, various technical premises, as well as the development of the surrounding area and roads. "This was an ideal location for the project, since the Valtris sorting centre was already installed on the other side of the road and our bottling plants were within a 150km radius, just on the other side of the border in northern France," Colette adds.

Building the plant in just two years was no small feat. Over many years, the site had been used for industrial activities such

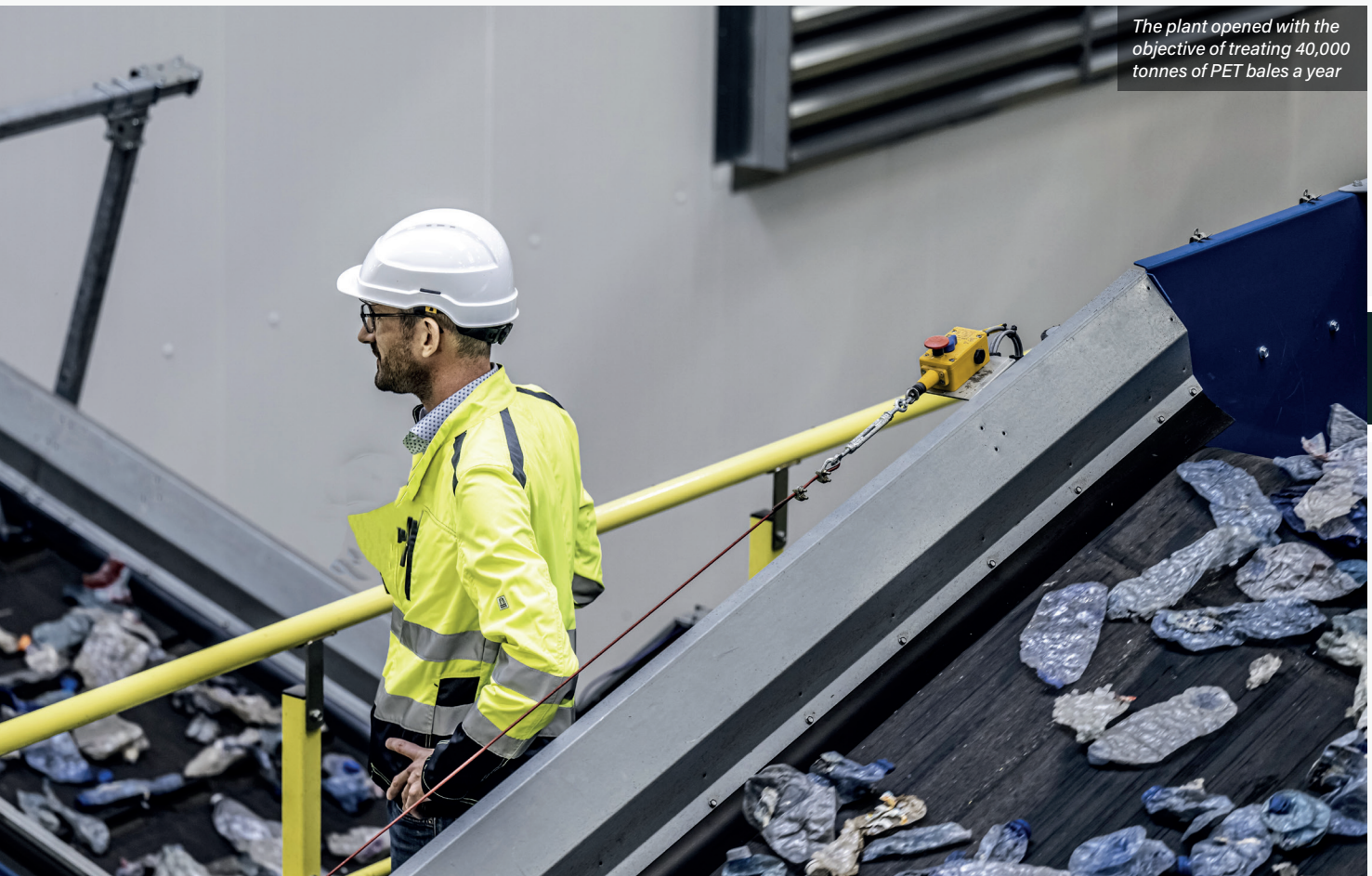
as steelmaking and chemical processing, and although it was officially earmarked as 'depolluted', the presence of hydrocarbons in the soil could not be totally ruled out – nor was the risk of settlement of the soil (given the weight it had to bear), which required major stability and dimensioning calculations. In addition, noise pollution and machine vibration also had to be taken into account.

"So, the solution we came up with was a 'box in the box' design," explains Jérôme Patigny, technical director of industrial builder Edibosud. "Coordination was crucial, too. Filao had already purchased an extrusion line and therefore asked that priority be given to the extrusion hall, then the sorting and washing hall, and finally the 'stock in' and 'stock out' halls." This meant that the progress of the work was partly conditioned by the presence of the heavy machinery on the various processing lines.

"We and our subcontractors had to constantly adapt to the changing situation in the buildings, because the initial plans no longer corresponded," says Patigny. "The numerous comings and goings of the lorries delivering the equipment needed to install the PET waste treatment lines also disrupted the approaches that facilitated access for the other site workers. In this



The plant opened with the objective of treating 40,000 tonnes of PET bales a year



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## Recycling in Belgium: the facts

The disposal of nearly all forms of plastics packaging in the New Big Bag became effective for all households in October 2021. The collection scheme is able to accept plastics packaging, drinks cartons, and metal packaging.

Suitable plastics packaging types collected include clear, blue PET bottles, coloured and opaque PET bottles, PET trays, HDPE, PP, polystyrene, PE film, mixed films and polyolefin blends.

Overall consumption of beverages in PET bottles in Belgium is around 150 bottles per consumer per year. In 2022, 61 per cent of household plastics packaging was recycled in Belgium. This year, 75 per cent of household plastics packaging waste is expected to be recycled in Belgium.



Sources Alma public affairs manager Arnaud Mittelette (left) and Filao's chairman of the board Damien Colette as the plant was opened to visitors

sense, coordinating the various parties involved was already a real challenge, both logistically and technically.”

### Emerging from the ground

The 18,000 sq m recycling plant started production in the summer of 2023 with the objective of treating 40,000 tonnes of PET bales a year. Fost Plus has committed to providing 33,200t of collected transparent clear or transparent blue PET bottles over a nine-year period, with the remaining volumes coming from other local sources.

Many of those collected bottles are likely to have been produced by Sources Alma. “Our family-run company is specialised in the production of spring water, natural mineral water and soft drinks,” explains Colette. “In addition to our own brands, we bottle water brands for many discounters and supermarkets in Belgium. That is a lot of bottles!”

The bottles come from five sorting centres, three in Wallonia and two in Flanders. Factoring in what he describes as “an excellent collection rate within a limited geography”, Colette describes it as a “winning scenario”.

“Before our plant, collected Belgian bottles were mainly going abroad for recycling in neighbouring countries,” he adds. “Today, thanks to Filao, we are closing the loop with the transformation of 70 per cent of the volume collected via the country’s New Blue Bag system. The rest of the PET bottles ▶

*“For the moment, we have enough rPET for our own consumption. In the future, we might have a surplus, and we will then be open to partnerships with other companies within the framework of the market economy for the use of rPET”*

Damien Colette, Filao

still go mainly to the Netherlands, but not for very long, we hope. We are in discussions with Fost Plus about the possibility of them supplying a few thousand tonnes more.”

According to Sources Alma public affairs manager Arnaud Mitteleite, undesirable packaging is extracted from bottle bales during the sorting stage, while labels and caps account for around 10 per cent of the total of other plastics. They too are sorted, collected and characterised by material, before being recycled in their own recycling stream to find new and varied applications in the building, textile, automotive and non-food packaging sectors.

### Five phases

The Filao Couillet plant transforms bottles into rPET granules, which are then used by Sources Alma to manufacture new preforms and bottles right across the border in its three Cristaline plants in the Lille area. The Filao rPET is supplemental to Sources Alma’s own bottle-to-bottle recycling plant, RoxPET.

Filao operates on three shifts, 24/7 with 42 employees. The process consists of the classic phases of sorting, crushing, washing, flake sorting, extrusion and decontamination in a solid-state polycondensation. Veolia offers expertise in dry sorting and crushing. Kronos provided a washer and sorting line (Metapure), while laser sorting, extrusion and decontamination into food-contact equipment came from German and Austrian suppliers.

The first dry-sorting eliminates impurities and is followed by removal of the labels. It is followed by crushing, where the bottles are reduced to flakes. A cold wash separates the cap flakes from the bottle flakes by flotation, before a hot wash removes all food residues, as well as traces of glue and paper. After drying, the flakes are sorted by colour and conformity – first, by infrared and then by laser. Transformation into rPET granules is followed by extrusion, and a final heat treatment in a special atmosphere guarantees suitability for food contact. Trucks deliver the recycled pellets to one of Sources Alma’s plants, where the company manufactures preforms and bottles.

“For the moment, we have enough rPET for our own consumption,” says Colette. “In the future, we might have a surplus, and we will then be open to partnerships with other companies within the framework of the market economy for the use of rPET.”

Particular attention has also been paid to reduce water consumption, with the help of a dry label removal machine and purification units for the reuse of cleaning water. The plant is equipped with 12,000 sq m of photovoltaic panels, providing around 20 per cent of its energy needs.

### New Blue Bag success

The collection and sorting of the Blue Bag is organised by Fost Plus in collaboration with municipalities, private waste operators and sorting centres. The Blue Bag contains



## Plastics recycling plants in Belgium

There are three plastics recycling plants operational in Belgium: Couillet Filao for PET bottle-to-bottle; Beringem for film-to-film; and Houthalen for mixed polyolefin packaging.

There are a further three recycling centres under construction:

- Lommel for PP and HDPE packaging waste.
- Neufchâteau MOPET for PET trays and PET Bottles (the plan is for 10,500 tonnes of PET trays and 17,000t of PET bottles per year).
- Antwerp port, Plastics2Chemicals for polystyrene (PS) and extruded PS via chemical recycling (the plan is 3,000t of PS this year and 65,000t in 2027).



Stadler’s label remover can process around 9 tonnes of plastics bottles per hour. Above left: PET is stored in multiple silos



The recycling rate for household plastics packaging in Belgium is expected to have reached 65 per cent in 2023



*“There are now five sorting centres in Belgium: Indaver and Prezero in Flanders, and three in Wallonia – Sitel, Val’Up and Valtris”*

*Valerie Bruyninckx, Fost Plus*

all packaging in metal, cartons and plastics – and, since 2019, almost all plastics packaging can be disposed of in the New Blue Bag. It was a gradual introduction, which became effective for all Belgian households in October 2021.

“The sorting message extended to almost all plastics packaging has had a snowball effect on traditional plastics packaging, including PET bottles and HDPE flasks,” says Fost Plus corporate communication and PR manager Valerie Bruyninckx. “As per an inter-regional agreement, Belgium set its own recycling targets for household plastics at 65 per cent for 2023. For household packaging waste, as from calendar year 2030, a minimum recycling rate of 70 per cent by weight for plastics must be achieved for the whole of Belgium. This target is much stricter than the EU one.”

For 2021 and 2022, recycling rates for household plastics packaging were 51 per cent and 61 per cent respectively. The target of 65 per cent appears to have been reached for 2023, although confirmation of this figure will follow in June. The reason for this rapid increase is the expansion of the sorting message to the consumer, enabling more materials to be collected for recycling. In addition, sorting and recycling capacities are increasing every month.

“There are now five sorting centres in Belgium: Indaver and Prezero in Flanders, and three in Wallonia – Sitel, Val’Up and Valtris,” explains Bruyninckx. “The last one, located opposite Filao’s plant in Couillet, sorts the New Blue Bag content into 16 different streams. With all these streams, to really close the loop on other packaging, we needed additional recycling centres. Now, there are six new recycling centres specifically for plastics packaging types. Three of them are already operational and three others will start recycling this year.”

Speaking at the ribbon cutting of the new factory, Luc Baeyens, chief executive of Sources Alma, stresses that: “With the Filao plant, in addition to our recycling units at Lesquin and Saint-Yorre, we are the only ones in the world able to guarantee that the PET we put on the market will be recovered and reincorporated into future bottles.”

Filao’s Damien Colette adds: “Of course, this new recycling plant is a magnificent achievement that we hope to replicate. However, we prefer to maintain a gradual approach.”

It seems the path to plastics packaging circularity in Belgium is a steady but sure one. EP

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