

Recycled product of the year

(supporting document)

About AO's Plastic Recycling

A mature electricals retailer with 20 years' experience selling and delivering electricals to the homes across the country and delighting our customers. AO has invested heavily in recycling, with in-house recycling of large appliances; and packaging, and in more recent years, an innovative AO designed plastics recycling plant.

The plastics recycling plant was created from the vision of refining the plastic outputs from the fridge processing plant, (but can also be used to refine plastics from other appliances), turning them back into single plastics for use directly back into new appliances and other high-quality, long-life products.



1. In autumn 2019 the plant went live.
2. Through a Covid and Brexit interrupted 2020 and 2021, we continuously improved the plant, processes, and our knowledge to supply consistent quality performance. This is continually measured internally with our on-site laboratory, and ratified externally with independent, accredited laboratories.
3. 2021 we began working with Ultra Polymers, and with them slowly built a customer base where the customer wanted to drive sustainability by growing their use of recycled plastics.
4. By 2022, it was clear that Volution Group had the appetite, supported by sustainability targets established by their leadership team; and a can-do attitude to overcome challenges quickly and pragmatically, to deliver the targets.

The Product

The Volution Group manufactures and sells high quality ventilation products, both domestic and commercial, through several brands across the globe. Recycled plastics from AO's plastic recycling plant is in many of the local UK brands, including Manrose, Vent-Axia, and National Ventilation.

The plastics used are High Impact Polystyrene (HIPS), and Acrylonitrile Butadiene Styrene (ABS), currently in white, but with grey being a possibility in the future.

As with all the ventilation products manufactured by Volution Group using AO recycled plastics, the plastic used is 100% recycled and not blended with virgin plastics.

Some products have a mixture of some parts made from virgin plastic and some from recycled plastics, as Volution continues to transition away from virgin; and work through the technical challenges which come with selling complex products, which are often very visible, with a long-expected life, electrical parts, and torque requirements.



The product we have chosen for the awards is the ventilation fan kit, sold under Vent-Axia and National Ventilation brands

The choice encapsulates many challenges we encountered as a tri-partite working group with recycled plastics, as it is a kit with multiple complex shapes, materials, and peripherals:

1. Mould shop confidence

The traditional view of recycled plastic is its low grade and poor quality. Mould shops have stringent quality levels and KPI's which are completely at odds with accepting lower grade materials.

We were told of a story which happened at the Volution UK based mould shop trialling AO's recycled plastic.

After some management pressure, the mould shop manager accepted they had to trial the material.

They moulded a complicated part of the fan, some 20 centimetres across, and including complex shapes. The mould was a complete success, and the moulder given the task started banging it on his bench. Bang!



Then again, and again. Soon, everyone in the mould shop was stood around the bench, each having a go at banging the test part against the bench, then looking closely at the part, (not damaged, cracked, or marked); and refusing to believe it was recycled. It was at this moment that we won over the mould shop, and they have supported AO's recycled plastic ever since.

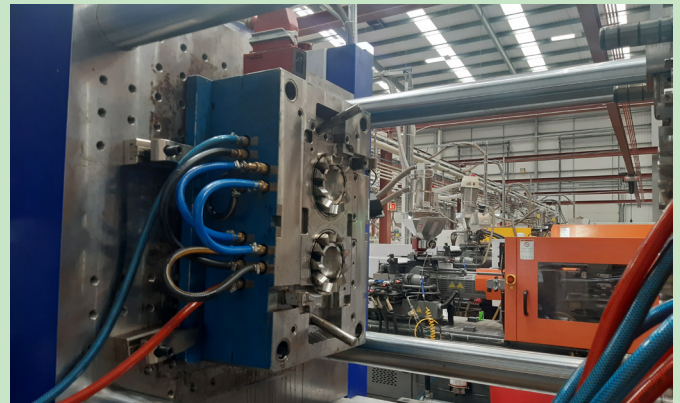
2. Transiting plastics

The most prevalent plastic in a fridge is HIPS, and therefore, to meet the requirements of Volution Group's sustainability targets; Volution had to change the type of plastic used and not simply swap from virgin to recycled plastics.

This bought with it decisions around aesthetics (HIPS is not as glossy as ABS for example), mechanical specifications (such as impact and tensile strength).

3. Tooling redesign

Flowing from point 2 above, (pun intended), different plastics have different flow rates and the mould shops realised that for some larger complex parts, the current mould/tool designs may lead to higher mould failures. Their response was to redesign the tooling to enable the recycled plastics, (with a lower melt flow) to reach all parts of the tool/mould.



4. Supply chain confidence

From experience of running a Just In Time production facility, and exacerbated by limited confidence of consistency of quality, there were early concerns of the mould shop; and therefore, the manufacturing sites running out of parts. We overcame this, using not only Ultra-Polymers experience in dealing with contingent/safety stock and extrusion partners, but also working closely with tri-partite supply and demand planning.

5. Colour (whiteness)

This was most noticeable when a product had a mixture of recycled and virgin plastics. The recycled white is not quite as white as virgin plastics – it could be, but that would require more masterbatch which is expensive and can also alter the mechanical properties of the plastic.

Volution's technical teams, as an example of their out of the box thinking, with some products have reduced the whiteness of the virgin plastics as it was the difference between the colours, and not the colours themselves, which was a potential risk to sales (and returns rates).





Vent-Axia



VENT-AXIA 17104010 97MM AXIAL INLINE EXTRACTOR FAN 240V (59546)

★★★★☆ 3.0 (3) [Write a review](#) [Ask a question](#)

ABS. Circular grille.

- 3-Speed
- Noise Level 22dBA at 3m
- Mount in Loft or Ceiling Void
- Ducting Not Included
- No Overrun Function
- Extraction Rate 220m³/hr
- Detachable Duct Spigots

[More Info](#)

View all: [Vent-Axia Bathroom Extractor Fans](#)

£154.99
INC VAT

QTY

Add to basket for...



Delivery



Click & Collect

[Check stock in your local store](#)

Add to saved list...

Save

The highest selling recycled Volution Group ventilation fan model in the UK is the National Ventilation Monsoon fan which as sold over 46,000 units, (up to end of Jan 23), across 61 trade customers in 763 distribution outlets.

More generally, Volution Group's products using AO recycled plastic have performed:

1. 330,261 fan units, equating to over 700 tonnes of recycled plastic (which is the white HIPS from around 175,000 fridges!)
2. Sold in over 3,500 retail outlets.
3. Sold in UK, Europe and globally (using sea freight to limit CO₂).
4. No change to returns rates from customers.

The future

The AO / Volution Group recycled product range continues to be developed with:

1. More volume, as the recycled plastics transition into more products.
2. Extending colours - to date the volume has been predominantly white material, but a mixed colour AO flake extrudes into a consistent grey which works exceptionally well in ventilation products.
3. We're developing the relationship with Volution Group to try to and leverage the AO circular economy. We're already trialling:
 - a. Accepting returned /used ventilation for re-processing with the outputs ready for a new appliance.
 - b. Purge material from extrusion and mould shop losses for granulation and re-use in new appliances.
 - c. Industrial cut-offs / waste.

The Supply Chain



Step 1

AO collects and recycles appliances then refines the plastics into single polymer flake.



Step 2

AO tests all outputs to ensure it meets the high specifications, if it doesn't, we start again.



Step 3

Single polymer plastics are sold to our customers, such as Ultra-Polymers, who extrude the plastics and add whiteners, (dependent on colour required), Volution Group (+700 tonnes last year).



Step 4

The extruded pellet is shipped to Volution Group for use in the UK mould shops, and the relevant parts are created, and quality tested.



Step 5

Volution then assemble and pack the ventilation products.



Step 6

The boxed products are shipped to the retailer / e-tailer ready for sale.

Key participants

Ultra-Polymers – A UK based plastics distribution, owned by Ravago, (global plastics distribution), who manage supply chain, extrusion partners and sales channels; along with plastics expertise to ensure the customers' requirements for a plastic application, match the specification of the plastic provided.

Sustainability has always been a large part of who we are. Ravago has been committed to various aspects of sustainability since the company was founded in the 1960s. Today, the word sustainability has become a different animal, politically charged, polarizing, often misunderstood, and misused.

We want to take a stance on sustainability by sharing our interpretation, what it means to us and how we aim to make a difference on a global scale. Like our core values – human focus, professionalism, entrepreneurship, and humility – our sustainability pledge is at the heart of our company, striving to reach a balance between people, the environment, and business.

In other words, we are making a promise to our employees, customers, suppliers, and everyone who is a part of our company's

ecosystem. Together, we will make an impact through our sustainability principles: recycling excellence, environmental footprint, and social impact.

Volution Group – Global market leaders in residential and commercial ventilation solutions, and in the UK, mould, manufacture and sell under numerous brands including Manrose and Vent-Axia.

Volution is committed to a net zero carbon future. This year we have set new targets for carbon reduction over the short, medium and long term which will enable us to achieve our commitment to a net zero carbon future.

This commitment is integral to everything we do. It shapes our values, steers our strategy and informs our capital allocation. We are closely aligned with environmental, health, regulatory and consumer developments that are reshaping the world's expectation of how we live life indoors.

To help us fulfil our ambitions we reviewed the material issues that impact our sustainability and prioritised them around the Company's and stakeholders' needs. These include feedback from our stakeholders. These have then been defined in 3 focus areas: product, planet, and people.

Within each of these areas we have new initiatives and improvement plans. We have aligned our strategy to the United Nations Sustainability goals which are the blueprint to achieve a better and more sustainable future for all.