

Creating a Circular Economy for Recycled Polypropylene in Aotearoa New Zealand

Recycled polypropylene (rPP) is a highly sought after material. Local and global demand continues to grow, outstripping supply. Aotearoa New Zealand has the opportunity to create a circular rPP economy worth between \$10.4m to \$17m annually¹ which will also come with environmental benefits including a reduced carbon footprint.

In March 2021, as part of our *Advancing the New Plastics Economy in Aotearoa* Programme, Plastics NZ initiated a cross industry working group. This group of stakeholders, including product and packaging manufacturers, retailers, recycling contractors, reprocessing operators, WasteMINZ plus other resource recovery experts, is committed to making this circular economy a reality.

A quick Introduction to Polypropylene (PP), recycled PP (rPP) and post-consumer recycled PP (pcrPP)

Polypropylene is a versatile packaging material. It is lightweight, chemical resistant (avoiding leaching, taste or odour issues), able to handle wide temperature variations and has a high impact strength.

PP is our third most commonly recycled rigid plastic (behind things like soft drink bottles made from PET #1 plastic and shampoo and detergent bottles made from HDPE #2 plastic). It's used to make ice cream and margarine containers, large yogurt tubs, dip pottles and many clear takeaway containers.

Recycled polypropylene is increasingly being used to make a wide range of household items including plant pots, storage containers and even some recycling bins themselves! As a lower density polymer, it has a higher yield per kg of material processed, making it a cost-effective option. Consumer demand for items made from recycled plastic — because of the environmental benefits of using recycled materials — continues to fuel growth.

The current environment and challenge

Every year between 8,000-10,000 tonnes post-consumer (pcrPP) enters our kerbside waste and recycling stream but a mere 15 percent of that is being reprocessed in New Zealand. Instead, 67 percent of our pcrPP scrap ends up in landfill (50 percent directly and 17 percent due to contamination). The remaining 18 percent is exported. That means every year we are losing between \$8.45m to \$14.9m of potential value by sending pcrPP to landfill and overseas. The good news is, we are making progress changing this.

Our pcrPP recycling is good and improving.

- More than 97 percent of Kiwis have access to pcrPP recycling via kerbside or drop off initiatives.
- There is an upwards trend — in 2021, access to pcrPP recycling grew by more than 17 percent.

We have recycling and reprocessing capacity.

- Automated sorting technologies have enabled larger scale pcrPP recycling.
- Local reprocessing of rPP has roughly doubled in the past four years.
- Local reprocessors have the capacity to process all domestic pcrPP.

Rising acceptance of PP is increasing the amount of local pcrPP available to reprocess.

¹ Based on the strong current market value of pelletised rPP of between NZ\$1300-\$1700 per tonne

- More retailers are accepting PP as a sustainable packaging option, including major grocery retailers in NZ.
- Mitre 10 works with Zealandia Horticulture recovering PP and rPP trays, pots and labels for reprocessing.

Demand for rPP is increasing

- The use of rPP in non-food grade items such as Method Recycling Bins, storage boxes, products for building foundations and road stabilisation is gaining momentum.
- Projects are underway in global markets to scale up the use of rPP in food-grade packaging, although this may be some way off implementing in Aotearoa New Zealand.

New Zealand's imported rPP is decreasing.

- There has been a reduction from ~1680 tonnes p/a to ~1200 tonnes p/a in the past three years.

Where to from here?

There are a number of opportunities to increase the amount of rPP we produce so that we can create a circular economy, including:

1. Continue to showcase the benefits of pcrPP recycling and provide practical advice to organisations on options for reprocessing rPP locally.
2. Empowering householders to recycle pcrPP.
 - Up to 67 percent of pcrPP is currently going to landfill because it is either not being recycled, or it is not being recycled correctly (e.g. contains food waste). Consumer recycling education is needed.
3. Support government leadership in recycling.
 - Encourage nationwide standardisation of kerbside recycling to include pcrPP.
 - Support the development of a standard recycling label so consumers can easily identify what to do with different materials and products (recycling bin, landfill bin, return to store etc).
4. Supporting industry leadership.
 - Encourage better packaging design that considers circular systems and the waste hierarchy.
 - Encourage use of NZ sourced rPP products being manufactured onshore.
5. Expanding our work into post-commercial recovery of PP.
 - Plastics NZ is working to understand the industries producing the most waste PP, the volumes involved and how much of this material local recyclers and reprocessors have capacity for.

Plastics NZ will continue to support the creation of an improved, low emissions, circular rPP economy for Aotearoa NZ. We see a not-too-distant future where all of New Zealand's pcrPP is diverted from landfill and recycled to meet the demands of local reprocessors. This will further reduce the need to import rPP and create economic and environmental benefits for us all.