



2021 SUSTAINABLE PACKAGING DESIGN OF THE YEAR - INDUSTRIAL BRONZE WINNER

Replas Polyrok



Key Outcomes and Measurement



For every cubic metre of Polyrok concrete laid, the equivalent of **8,750 pieces** of plastic will be saved from landfill



Plastic-to-cement binding technology replaces conventional mineral aggregate while diverting plastic from landfill



Taking the most problematic waste stream, soft plastic from REDcycle

10%

of coarse aggregate replaced by plastic



More sustainable concrete



Can be recycled and reused over and over



Soft plastic is **3x** lighter in weight than traditional mineral aggregate



Ideal for pathways, kerbs & channels



Soft plastic is **3x** lighter in weight than traditional mineral aggregate



Product:

Polyrok

Company:

Replas

Country:

Australia

For more than 30 years, Replas has produced a range of over 200 products and has grown to become Australia's leading recycled plastic products manufacturer. Replas has developed world leading technologies at their manufacturing plant in Ballarat Victoria, to turn Australian plastic waste into robust recycled plastic products for outdoor use.

These products offer an ethical alternative to the unnecessary use of virgin materials and provide long lasting advantages to customers. In 2020 Replas tested their newest innovation, Polyrok, which takes the most problematic post-consumer waste, soft plastic, and turns it into a sustainable plastic aggregate alternative to mineral aggregate used in concrete for pathways, kerbs, and channels.

COORDINATED BY



ANZ REGIONAL AWARDS PROGRAM



INTERNATIONALLY ENDORSED BY



EXCLUSIVE ENTRY TO



- ✓ 95% post-consumer plastics.
- ✓ 3 times lighter than mineral aggregate.
- ✓ Lower thermal mass.
- ✓ Less wear and tear on equipment.
- ✓ Reduced transportation and installation costs.
- ✓ Enhanced durability.
- ✓ NATA tested in standard mPa mix designs, 100% strength retention.
- ✓ Up to 10% of coarse aggregate replaced by plastic otherwise destined for landfill.



In the context of your packaging innovation, what do you see as Sustainable Packaging?

Sustainable Packaging is material that can be composted or recycled and used again and again. Soft plastic material is single use and considered one of the most problematic waste streams to recycle and reuse. State of the art technology allows Replas to use soft plastics that are recovered from the REDcycle program in Coles and Woolworths, for the production of Polyrok consisting of approximately 95% Red Group material with 5% engineered recycled content to ensure maximum performance in the concrete.

What would you say were the decision-making drivers (Internal and External) influencing your packaging design?

Replas was only taking in about 3,000 tonnes of soft plastic material from Red Group a year, whereas Red Group collects more than 4,500 tonnes of soft plastic through their REDcycle program each year, meaning much more was coming in than going out. Replas and consumers understand that there needs to be a bigger, more scalable solution for the soft plastic material. After working with industry experts and research and development engineers at RMIT, and along with trials with Coles, Replas found the scalable, fit for purpose solution for the soft plastic waste – Polyrok, for use in concrete.



What benefit does this new design offer your business and your consumers? Why is the pack more sustainable?

Polyrok benefits brand owners, who produce the soft plastic waste, and councils, who need to find a home for their community's waste. For Replas, new technology and machinery means taking in more soft plastic, and working towards a solution for Red Group and single use soft plastic material.

What volumes of materials, packaging and waste have you saved by designing this new packaging?

Did you do this through changing materials, lightweighting, recycled content, making the packs recyclable or reusable?

As mentioned, Replas was only taking in about 3,000 tonnes of Red Group material a year. New technology and equipment will give Replas the capacity to use 10,000 tonnes of soft plastic material a year. If every council in Australia installed a Polyrok footpath, there would be 100,000 tonnes of the most problematic post-consumer waste saved from landfill.

How much on-pack and off-pack information do you provide your customers?

Consumers can see on soft plastic packaging with the Australasian Recycling Label (ARL) if the material goes in the general waste bin, or if it can be dropped back off at the store in the REDcycle bins. When recycled through Red Group, they know the material is made into recycled plastic products. By educating the public, government, councils, and brand owners, they will see the possibilities with Polyrok using the same soft plastic material.



Please share a little bit about each of the partners/collaborators who worked on this packaging design.

Can you explain each of their roles?

Replas – Mark Jacobsen, Managing Director of Replas, reached out to engineers and the R&D department at RMIT to undergo testing of soft plastic in concrete.

SR Engineering – Steve Rawson, leading engineer developing Polyrok, has worked closely with Replas and RMIT to create the right mixes and technicalities behind Polyrok.

RMIT – Dr. Jonathan Tran, Senior lecturer in Civil and Infrastructure Engineering at RMIT, lead the testing of Polyrok and provided further feedback during the trial periods.

Coles – Fiona Lloyd, State Construction Manager, to take the first steps to trial Polyrok in new Coles developments, showing strong sustainable procurement for the soft plastics collected in their stores.

Red Group – Elizabeth Kassel, Director of Red Group, put her trust in this innovation from Replas and has supported the process at every stage.

What do you feel will be needed to further improve packaging design in the future? (e.g. education, investment, policy/legislation, tech, etc?)

Education surrounding Polyrok, what it is capable of and how councils, governments, and the civil industry can incorporate it in their infrastructure projects in the future is necessary. Policy and or legislation to ensure recycled content is being used for all projects will be one of the biggest breakthroughs for not just Polyrok but the recycling industry as a whole – there needs to be accountability for the plastic being produced and what it can be turned into. In this case, a scalable, fit for purpose option for almost any project requiring concrete.

What does your company have planned in the future? Any new innovations on the horizon?

Replas is always improving and implementing new technology and machinery to create more recycled plastic products. The future of Polyrok could see installations in every state across the country with concrete plants and factories built along the Eastern Seaboard of Australia to cope with the growing demand for this sustainable aggregate alternative using soft plastic waste.



As a winner of the PIDA awards, how valuable is the award to your organisation?

“Winning the 2021 Bronze Award for Sustainable Packaging Design of the Year (Industrial) has been one of the greatest achievements of Polyrok to date. Having such an honour come from the industry leaders at AIP allows Replas to confidently and proudly continue the work of educating councils, governments, and the public on this new innovation to divert soft plastics from landfill. Replas, with the incredible team effort from SR Engineering, Coles, and Red Group can bring this initiative to life and provide a scalable solution for the most problematic plastic material,” says Mark Jacobsen, Managing Director, Replas.



The Australasian Packaging Innovation & Design (PIDA) Awards are an Australia and New Zealand program that is coordinated by the Australian Institute of Packaging (AIP). The awards recognise companies and individuals who are making a significant difference in their field across Australia and New Zealand. The PIDA Awards are the exclusive entry point for Australia and New Zealand for the prestigious WorldStar Packaging Awards.

The Design Innovation of the Year company awards recognise organisations that have designed innovative packaging within each of these six manufacturing categories:

- Food
- Beverage
- Health, Beauty & Wellness
- Domestic & Household
- Labelling & Decoration
- Outside of the Box

There are four special awards available:

- Sustainable Packaging Design
- Save Food Packaging Design
- Accessible & Inclusive Packaging Design
- Marketing Award

The **Sustainable Packaging Design Special Award** is designed to recognise companies that have developed innovative packaging solutions that incorporate sustainability considerations. All entries are judged on Sustainable Packaging Design considerations such as social impact, material, source reduction, energy and recovery and what packaging changes the company is undertaking to meet the 2025 National Packaging Targets. This is also a WorldStar Packaging Awards category.



The Australian Institute of Packaging (AIP) is the peak professional body for packaging education and training in Australasia. The AIP helps shape the careers of generations of packaging professionals – from packaging technologists to international packaging business leaders along with a host of people in associated disciplines – sales and marketing, purchasing, production and environment.

Australian Institute of Packaging

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