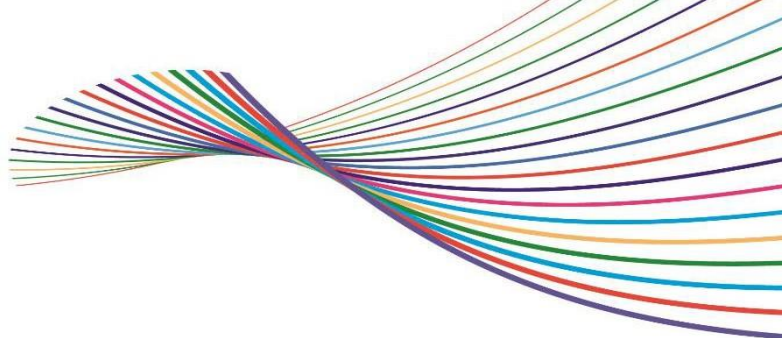
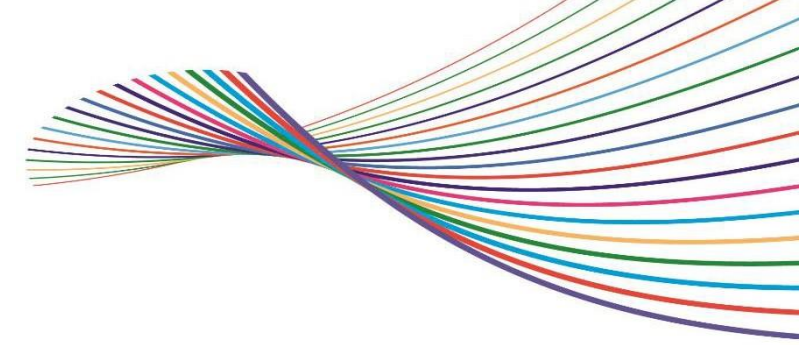


Zipform Packaging Introduction

March, 2024

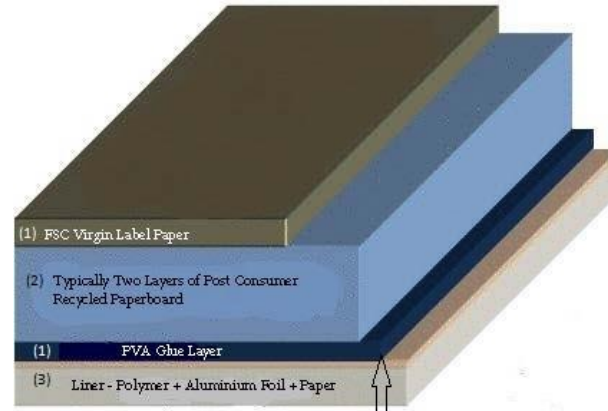


Innovative, Reliable & Resilient



- Specialty packaging manufacturer – Australian Owned
 - Experienced team in touch with packaging trends & innovations.
 - Leading Global Packaging Expertise
- BRCGS Grade AA Accredited (Packaging Version 6)
- Australian Trusted Trader (Supply Chain Audit – Australian Government)
- Australian Packaging Covenant Organisation Member (PREP packaging analysis access to demonstrate pack recyclability / Annual reporting & action plan)
- Member of Complementary Medicines Association; 2022 & 2023 sponsor of Sustainability Awards
- Project Members of the Australian Research project developing a Save Food Packaging Criteria Framework
- Winner of 2 Worldstar 2022 Awards, winner of a 2022 PIDA (Australasian Packaging Award) with Swisse Earth pack & 2023 winner of PIDA with Nutura which also won a Worldstar in 2024
- Invested \$8m in a new manufacturing line in Melbourne; start up Q3 2023

Rigid Composite Packs

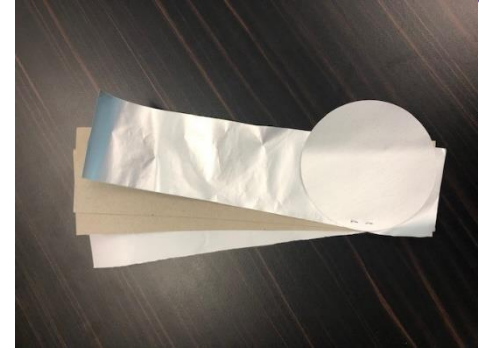


Inside of Pack

Note that the PVA glue layer breaks down readily, allowing the liner to be easily separated during the recycling process and for the fibre to be recovered without contamination

7 Layers in total, 4 Fibre Layers, one pva adhesive, one polymer and one aluminium foil

Zipform Packaging Composite Pack Composition



Material Properties		
Liner - Bottom Permeability		
Water Vapor	0.1 g/m ²	ASTM F1249
O ₂	0.1 ml/m ²	ASTM F1927

27% Virgin FSC Fibre

7% Virgin PE or Bio Plastic and Al Foil

Graphic showing Circular Economy credentials of a Zipform Packaging composite pack

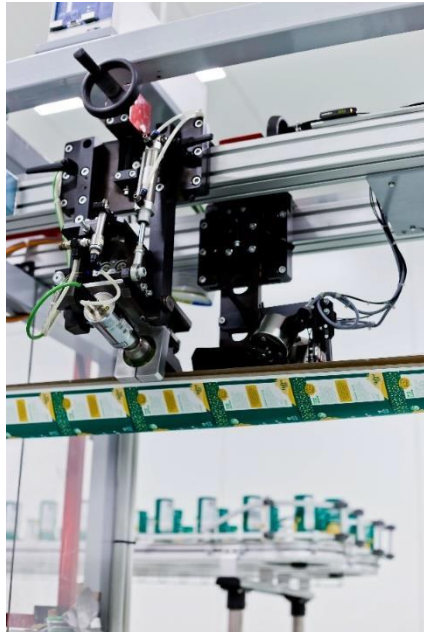
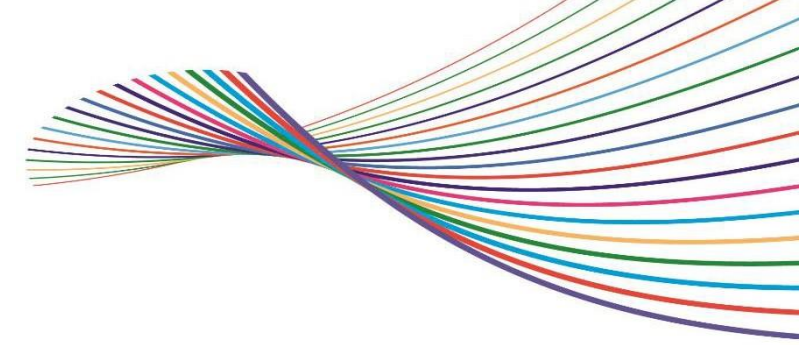


Strictly Private and Confidential



Manufacturing Process

Rigid Composite Packs



<https://www.zipformpackaging.com.au/pages/media>

Strictly Private and Confidential



Retailer ranged examples



Flujo – Natvia
(Woolworths, Coles & export markets)



Metro Food – Protein Powder
(Woolworths)



Pana Organic
(Woolworths)



Eco Superfoods – PranaOn
(Woolworths)



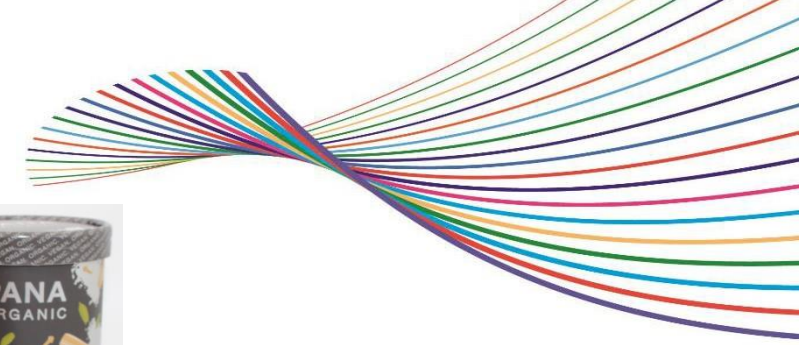
Nature's Way – SlimRight
(Woolworths)



Healthy Mummy
(Woolworths)

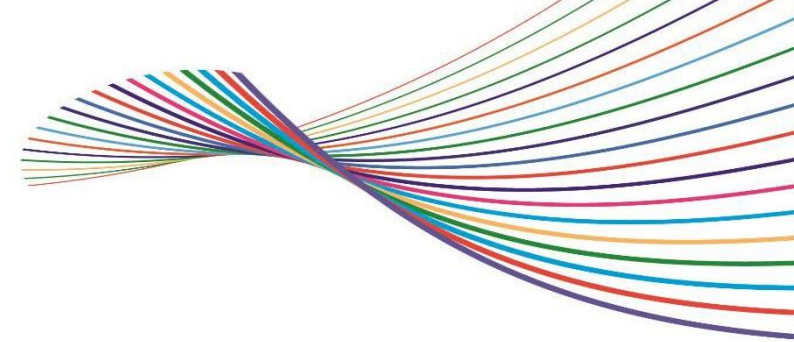


Swisse Earth
(Chemist Warehouse)



Fibre Packaging

APCO Guidelines



QUICKSTART GUIDE

DESIGNING FOR RECYCLABILITY – FIBRE BASED PACKAGING

Guide to selecting materials

COMPONENT	PREFERRED	RECYCLABLE WITH REDUCED VALUE	AVOID (NOT COMPATIBLE)
Material	<p>Wood fibre at a minimum of 90% by weight (including accepted fillers).</p> <p>Bleached softwood fibre.</p> <p>Unbleached kraft – end-markets include new packaging.</p> <p>Uncoated and untreated glassine</p> <p>Other materials must be included at compatible limits – see below.</p>	<p>Wood fibre 85 – 90% of the total weight (including accepted fillers).</p> <p>Other materials must be included at compatible limits – see below.</p>	<p>Wood fibre less than 85% by weight.</p> <p>Requires testing: Non-wood fibre (e.g. bagasse, bamboo) at any % by weight. As these alternative fibres have different properties (e.g. strength), testing is required with results assessed to local contexts for kerbside recyclability.</p>
Plastic laminates and coatings	<p>For best practice and reduced contamination, aim to include the least amount of secondary materials as possible.</p> <p>If required, the following secondary materials are accepted when less than the percentage indicated cumulatively:</p> <ul style="list-style-type: none"> - PE (HDPE, LDPE, LLDPE) – less than 5% - PP (PP, OPP, BOPP) – less than 5% - PET – less than 5% <p>One-sided coatings and laminates.</p> <p>Where required, utilise peelable layers consumers can separate from the fibre packaging.</p>	<p>The following secondary materials are accepted when their combined percentage is up to 15% by weight, and their individual percentage is:</p> <ul style="list-style-type: none"> - PE (HDPE, LDPE, LLDPE) – between 5 - 15% - PP (PP, OPP, BOPP) – between 5 - 15% - PET – between 5-15% - PS – between 0-5% - EVOH – between 0-5% <p>One-sided coatings and laminates.</p>	<p>The following secondary materials are not accepted at any level:</p> <ul style="list-style-type: none"> - Silicone (Under review) - PVC - PVDC - Other plastics - Other materials <p>The following secondary materials are not accepted if their combined percentage is greater than 15% by weight, or if their individual percentage is:</p> <ul style="list-style-type: none"> - PE (HDPE, LDPE, LLDPE) – greater than 15% - PP (PP, OPP, BOPP) – greater than 15% - PET – greater than 15% - PS – greater than 5% - EVOH – greater than 5% <p>Requires testing: Coatings or laminates applied to both sides of the packaging, PLA, PHA, new coatings and technologies such as aqueous coatings, water dispersion coatings etc. up to 15% by weight when combined.</p>
Aluminium foil			<p>Requires testing: Aluminium foil used as a layer in fibre-based packaging at any % by weight</p>

Table 2

Non-Recyclable Items

Item	Example	Reason
Plastic films	<ul style="list-style-type: none"> - Bread bags - Pasta bags - Shopping bags - Cling wrap 	Flexible plastic materials cannot be recovered in MRF. May end up in paper stream and then be diverted as waste.
Degradable plastics and degradable additives	<ul style="list-style-type: none"> - Shopping bags - Biscuit trays 	Degradable plastics and degradable additives can interfere with other plastics during processing
Flexible Plastic/foil laminates	<ul style="list-style-type: none"> - Prepared meal satchels - Chip packets 	Will likely travel to paper stream at MRF as a 2D material. Will be diverted as waste at pulping plant.
Waxed cardboard	- Fish box	Wax cannot be readily broken down during pulping.
Expanded Polystyrene	- Packing around electronic goods	May break up at MRF or end up in paper stream.
High wet strength boxboard	- 6 pack	Chemicals prevent fibre recovery during pulping.
Thin Plastic items	- Straws, Cutlery, Stirrers	Whilst one dimension may be greater than 50mm, items that are very small in the other two dimensions will fall through the screens. Also, flexible items like straws will be bent over in the discs screens and pushed through to the glass/fines stream.
Aerosols Cans with a Schedule 6 Poisons rating under the Poisons Standard (or the SUSMP) & all BBQ cleaner aerosols		Can cause hazardous conditions for recycling industry personnel
Composite cans (with a metal base)	Chip containers, gravy packs	Packaging made of composite (multiple) materials are a challenge to recover as the materials will not be separated and they will not be directed to their required recycling stream and a lot of material will be lost or lead to contamination.



APCO Pulpability Protocols

December 2022



Version 1 – December 2022



Standardised Test Method for Repulpability Assessment

Author

This methodology has been created by Warren Batchelor – BioPria (Monash University).

Method

Sample preparation

Samples should be cut up into 2.5 cm x 2.5 cm (approximately) squares before pulping.

Disintegration

Select a representative part of the cut sample. The sample should represent that of the item at disposal, i.e., formed, after use, product removed, any obvious non-fibre recycling components removed. Measure the percent moisture content of the sample according to AS 1301.457:2020 (*Determination of moisture content in paper, board and pulp*).

Disintegrate the cut sample according to ISO 5263-1:2004, (*Pulps - Laboratory wet disintegration - Part 1: Disintegration of chemical pulps*) including disintegrating at 1.5 wt% solids. The sample should be run for 40,000 revolutions. Disintegration shall be completed at 45°C (±5°C).

Note any deviations from the standard in the completed testing report.

Yield after recycling (required)

The yield after recycling should be evaluated using a modified form of ISO 15360-1(*Recycled Pulps- Estimation of Stickies and Plastics- Part1: Visual Method*). The method allows for screening by any suitable equipment with slots of 150-micron width and different types of equipment. The slot size and equipment type should be specified in any reports generated as this will influence yield. If alternative slot widths are used, these shall be less than 150-micron. The modifications to the ISO 15360-1 Standard are that the yield is determined and the visual examination described in clause 7.5 onwards is optional.

The standard specifies screening 100 dry grams initially and then adjusting up or down, depending on the reject rate. For the method developed here, the amount screened should be calculated based on the dry weight of the sheets that will be made from the accepts. In any case, the mass of material processed should be noted in the test report.

After screening, material remaining on the screen should be carefully removed from the screen as specified in the standard and filtered through filter paper that has previously been individually measured to determine the oven-dry weight.

After filtering, the filter paper is oven-dried again and the increase in weight determined.

The rejects fraction is then calculated from

$$R \% = \frac{W_r - W_f}{W_s} \times 100\%$$

where W_s is the dry mass of the sample filtered, W_r is the dry mass of the filter paper before filtering and W_f is the dry mass of the filter paper and the rejects.

Visual rejects analysis (optional)

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P: (02) 8381 3700



Version 1 – December 2022



The rejects retained on the screen can be visually analysed according to clauses 7.5 and 8 in ISO 15360-1 (*Recycled Pulps- Estimation of Stickies and Plastics- Part1: Visual Method*). Visual analysis can be assessed to determine if suitable for recycling, which must be determined with interested parties (i.e. paper mills).

Handsheets Preparation

Handsheets testing is mandatory for alternative fibres and products with borderline yield results.

Handsheets can be formed from the accepts through the screen to examine quality, using one of two methods.

Method 1.

Measure the solids content of the accepts. Calculate the volume of the accepts required to make a 60 g/m² sheet. Filter this in a Büchner funnel to create a 60 g/m² sheet. Following drying, carefully separate the sheet from the filter.

Method 2.

Filter all the accepts to concentrate the fibres. Remove the fibres from the filter paper to make a wet-crumble pulp. Form 60 g/m² handsheets according to AS/NZS 1301.203s:2007 (*Forming handsheets for physical testing of pulp*). Note that each handsheet will require 1.2 grams of fibres.

Handsheets properties

Handsheets properties can be assessed to determine if suitable for recycling. Suitability must be determined with interested parties (i.e. paper mills), based on the application of the recycled material. Suitability for these applications will be determined by yield and the properties of the sheets formed.

Handsheets properties should be tested according to the relevant standards, including but not limited to:

- AS 1301.448:2019 - Methods of test for pulp and paper, Method 448: *Tensile strength of paper and paperboard (constant rate of elongation method, 20 mm/min)* (ISO 1924-2:2008, MOD)
- ISO 5350-1:2006 - *Pulps - Estimation of dirt and shives - Part 1: Inspection of laboratory sheets by transmitted light*

Repulpability evaluation

The recycled material quality can be evaluated from the following table:

Yield	Handsheets properties	Result
90%+	AND Acceptable performance for application	Good recyclability - acceptable
80%-89%	AND Acceptable performance for application	Poor recyclability - possibly acceptable, depending on grade and mill
<79%	Not recyclable – not acceptable	

Note: All test results must be reported in the Pulpability Reporting Template provided for consistency.

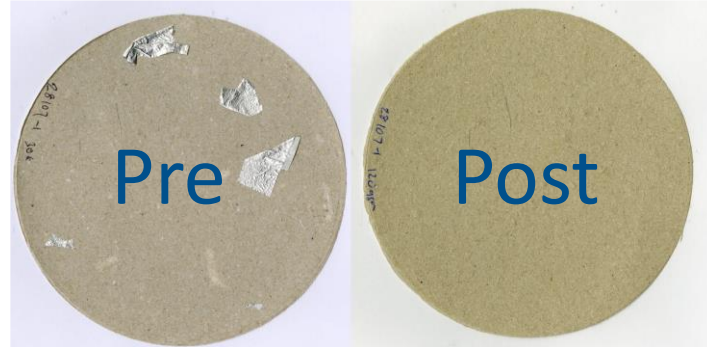
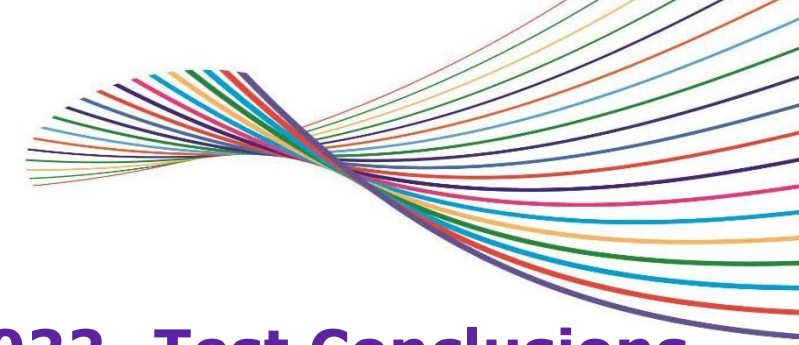
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Pulpability Testing - OPAL

Rigid Composite Packs

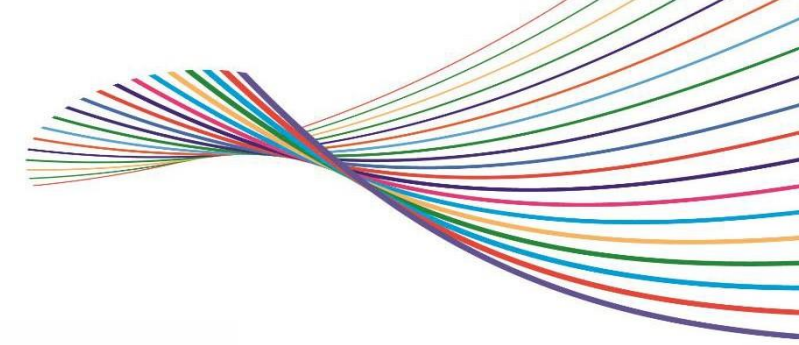


September 2022- Test Conclusions

- Small residue of coating particles and large foil fragments can be seen across all inspection sheets made at different levels of disintegration.
- It can be concluded that about **30,000** revs will be the minimum requirements to fully disintegrate the composite sample.
- Yield was estimated to be approximately **89%** with the presence of small residue coating particles still found in the accepts of the Somerville fractionator.
- Overall, determined to be recyclable as all foil fragments and majority of the residue coating were captured on the Somerville fractionator, and hence could be separated out during the recycling process.

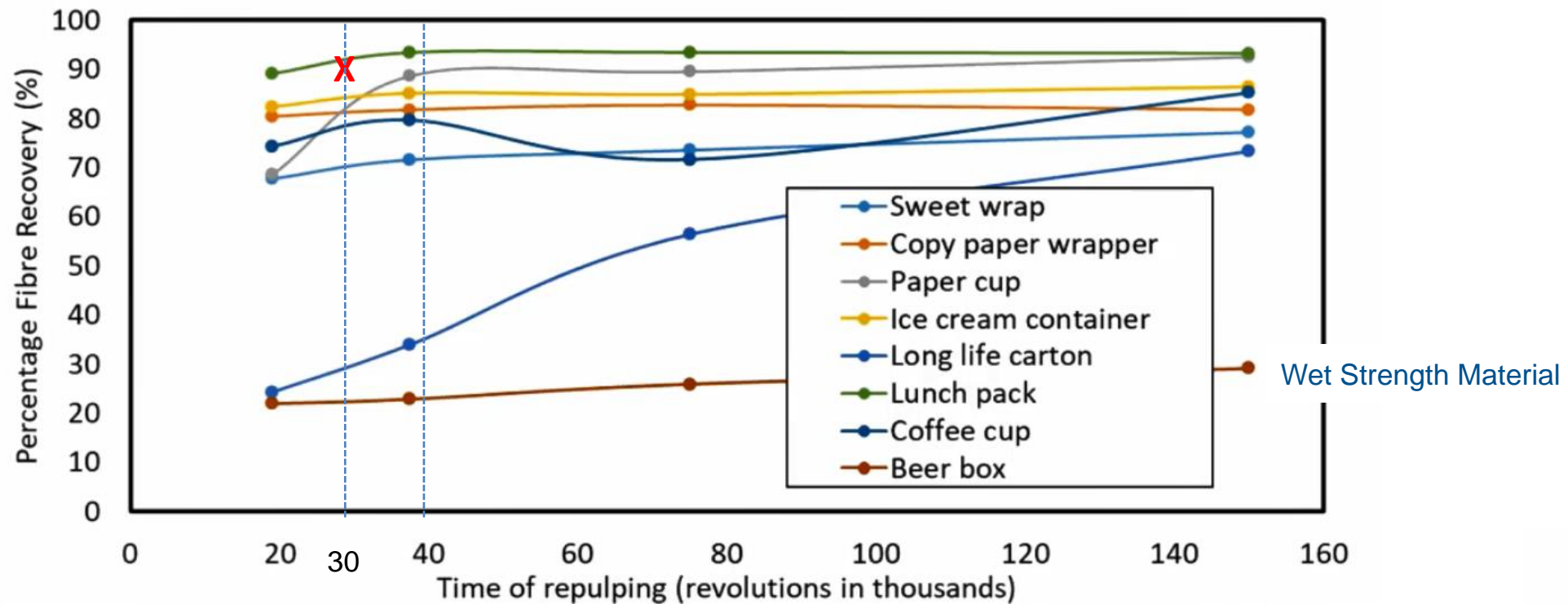
Pulpability Testing

Monash University Study

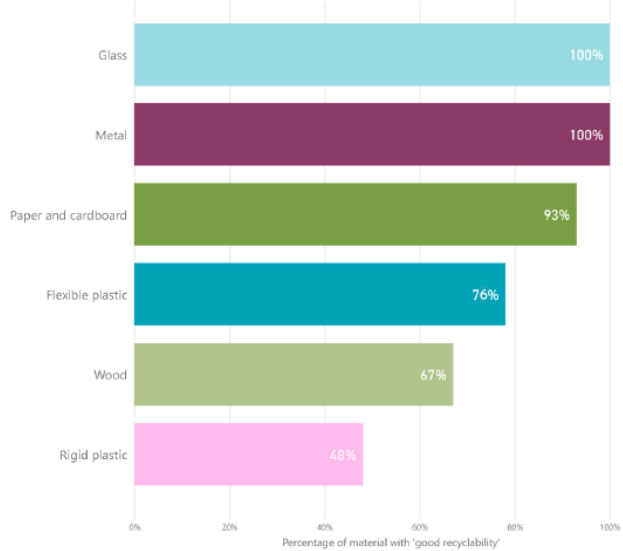


Standard disintegrator, 50°C with NaOH

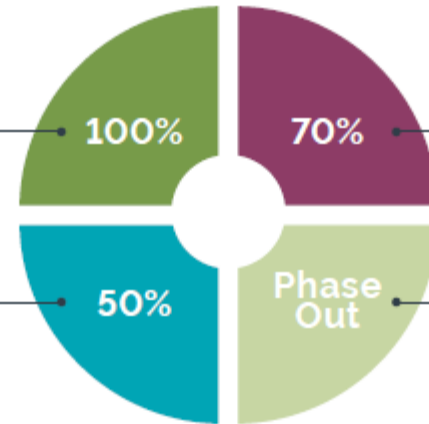
X = ZP Composite Pack Material – Opal Test Result – 30,000 revs. @43 deg.C



2025 National Packaging Targets Review



100% of packaging to be reusable, recyclable or compostable



70% of plastic packaging recycled or composted

50% average recycled content across all packaging

Phase Out problematic and unnecessary single-use plastic packaging through redesign, innovation or alternative delivery methods

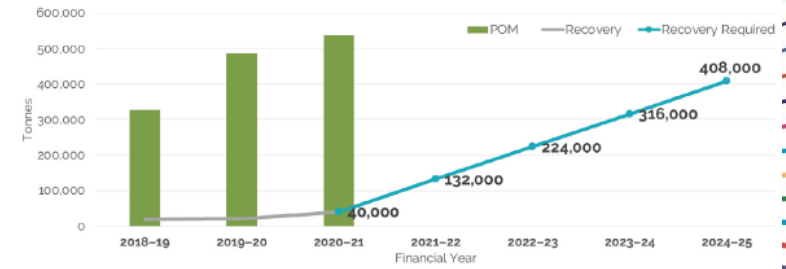
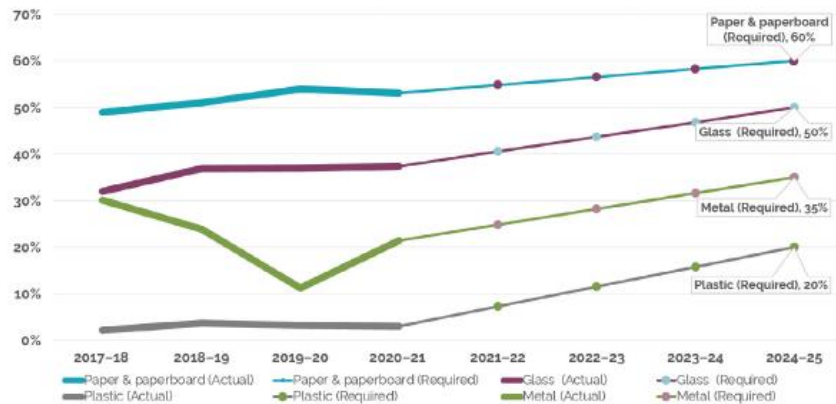


Figure 6.1: Historical and required progress to Target 2 for flexible plastics.

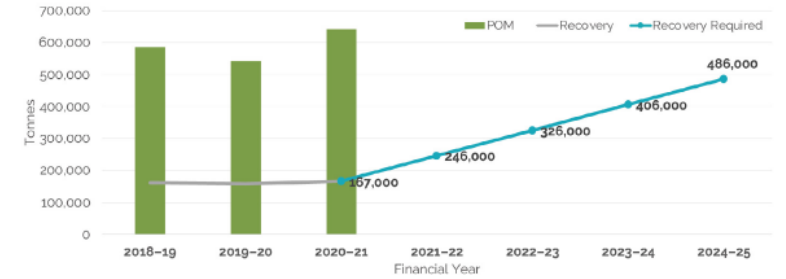


Figure 6.2: Historical and required progress to Target 2 for rigid plastics.

PRIORITY ITEM	2019-20 (TONNES)	2020-21 (TONNES)	% CHANGE 2019-20 TO 2020-21
Single-use HDPE shopping bags	200	100	-49%
Rigid PS	17,100	17,200	1%
EPS	22,700	29,000	28%
PVC	16,900	14,800	-12%
Oxo-degradable plastics	2,100	800	-64%
Plastic tableware	25,200	13,200	-48%

Source: APCO Review Of The 2025 National Packaging Targets – April 2023

https://apco.org.au/resources?news_search_form%5Bterm%5D=national+packaging+targets&news_search_form%5Btime_period%5D=all

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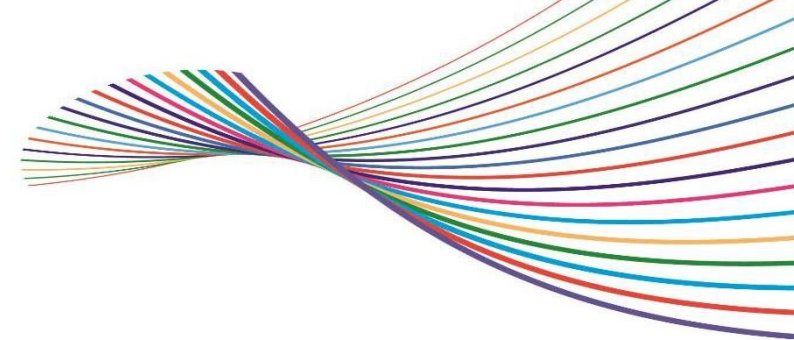
2025 National Packaging Targets – Zipform Packaging

Recycled Content

- **Our composite packs already have > 60% recycled content i.e. already exceeding the 2025 target for paperboard.**

Kerbside Recyclability

- **Our pack is deemed kerbside recyclable via PREP tool & pulpability testing; allowing APCO members to assign ARL & in future SMEs through ARL Marketplace**

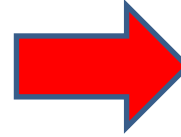
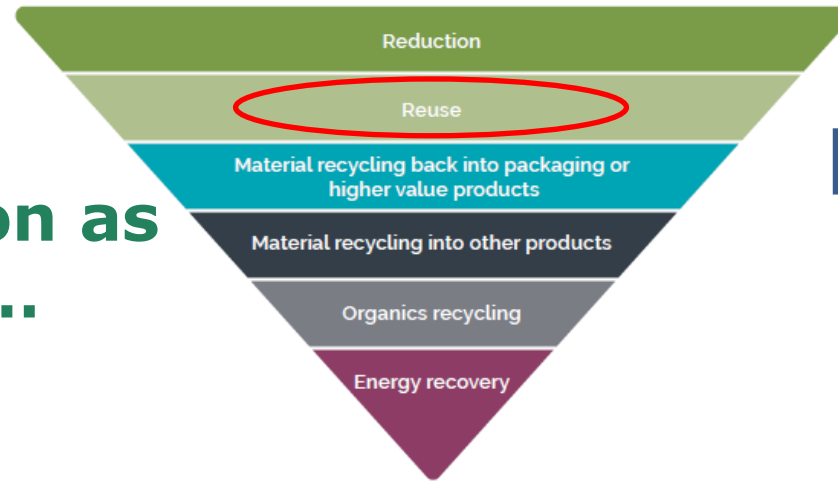


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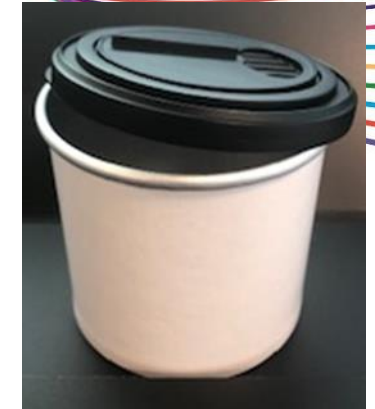


Fibre Packaging Innovation

Fibre Innovation as a continuum.....



rPump



rSprinkle

Fibre Cutlery - DMF



Stackable Fibre Overcaps



Fibre Overcaps - DMF

Laser-Etched Coding



Melbourne Plant

Investing in Australian Manufacturing



- 10,600m² new shed build in Dandenong South, VIC; Practical Completion = June 2023; production September 2023
- Integrated plant/warehouse with 3PL provider
- 5 Star Energy Rated Building; 400kW solar on roof
- AU\$8.5m CAPEX Manufacturing line in 1000m² cleanroom (Phase 1); Phase 2 & 3 1800m² cleanroom 2025/2026
- Adds capacity and contingency to current WA manufacturing footprint; we are the only rigid composite pack (paper bottom) manufacturer in Australia
- Some extra “bells & whistles” on new line v Perth; in line print inspection system, base laser etching (planned)

Award Winning Packaging

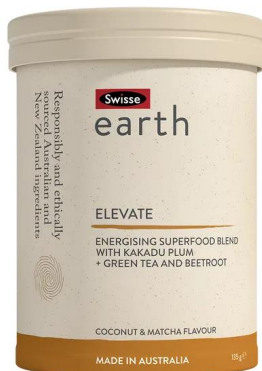
Rigid Composite Packs



2021



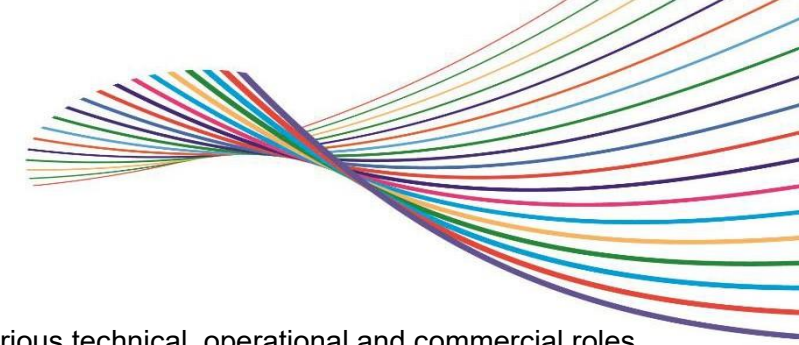
2022



2023/2024



Key Personnel – Packaging Pedigree



John Bigley – CEO

- Over 37 years' experience in the packaging industry in various technical, operational and commercial roles
- Moved from Europe in 2011 to lead a 200 million AUD Australasian metal packaging business and joined Zipform Packaging in April 2018; previously MD at Ardagh ANZ / Jamestrong Packaging supplying metal foodcans (Kraft Heinz), infant formula cans (Synlait, TMI, Saputo) and aerosol cans (Unilever).



David Kilpatrick – Technical, Innovation and Quality Director

- Founded SOTA Packaging in 2010, rebranding as Zipform Packaging in 2018.
- Held senior management positions with a range of businesses in the dairy and retail food services sector.
- Prior to founding SOTA Packaging in 2010, was the Managing Director of Dyson's Packaging.



Eddy Pahor – Commercial Director

- 20 years experience in the packaging industry and over 30 years in sales and business development.
- Held senior Key Account and Business Development roles in manufacturing businesses for 25 years before co-founding SOTA Packaging in 2010.



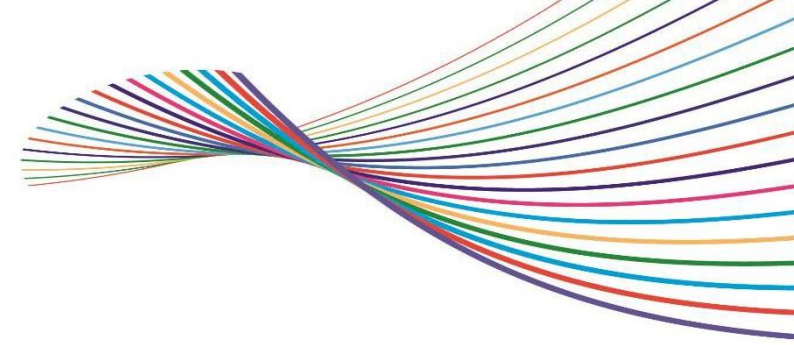
Andrew McIver – Business Development & Key Account Manager

- Over 13 year's experience in the packaging industry with a specific focus on FMCG packaging solutions
- Particular knowledge in food packaging applications and printed packaging markets.



Peter Boundy – Business Development and Applications Manager

- Over 20 year's experience in the packaging industry,
- Particular knowledge in finding packaging and packaging processing solutions for the Australasian FMCG market
- Expert knowledge of packaging capital equipment and hands-on installations.



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