

HOUSEHOLD CONSUMER SOFT PLASTICS

Introduction

This Quickstart is intended to be used in conjunction with APCO's *Sustainable Packaging Guidelines* (SPGs) by providing greater detail on the best-practice 'designing for recyclability' for soft plastic packaging destined for consumer households. In accordance with the waste hierarchy, options for elimination or reduction should be explored first.

A key challenge for recycling soft plastics from households is their incompatibility with conventional material recovery facility (MRF) processes. Soft plastics often become caught in machinery, which can lead to damage or failure of the MRF equipment. As a result, these materials currently need to be collected separately in order to be mechanically recycled. Reprocessing is also more difficult for multi-layer laminates due to the mix of polymers and other material types.

Existing collection and recycling systems

Household consumer soft plastics are currently not recyclable through most kerbside collection systems in Australia. There are however a number of alternative collection systems including:

- Retail drop-off (e.g. *REDcycle* - collections at all Woolworths and Coles supermarkets).
- Some council drop-off facilities.

Currently in Australia, the Australasian Recycling Label (ARL) Program recognises the REDcycle program as the primary collection and recycling opportunity for household consumer soft plastic packaging. International guidelines developed by CEFLEX are considered 'best-practice' and will inform APCO's work on soft plastics as we work towards achieving the 2025 National Packaging Targets.

NOTE: *This Quickstart is used to communicate best practice 'design for recycling' of household consumer soft plastic packaging. For specific information related to recycling of soft plastics in Australia, you may wish to refer to the Packaging Recyclability Evaluation Portal (PREP) or sources for the specific program. More detailed guidelines were developed internationally by CEFLEX, these were published in 2020 and are available [here](#).*

These collection systems enable recycling into a range of products such as outdoor furniture, railway sleepers, builders' film, and as an additive for road base. Emerging technologies such as chemical recycling may provide additional longer term solutions. For more information see the *APCO 2018 Soft plastic Working Group Key Findings Report*.

Tips for 'best practice' design for recycling

The following guidelines, are relevant to existing soft plastics recycling systems in Australia, which prefer to accept polyolefins (polyethylene (PE), high density PE (HDPE), low density PE (LDPE) or polypropylene (PP)) for material recycling. They do not apply to certified compostable plastics, designed for organics recycling. Further information on compostable plastic packaging

is available in our *Considerations for Compostable Plastic Packaging* resource, release in May 2020.

The tips refer to 'primary polymers' (the main substrate) and 'secondary polymers' (other material layers in the packaging, e.g. to provide additional functionality).



USE MONO-MATERIALS AND LIGHTWEIGHT WHERE POSSIBLE

Use only polyolefins (mono-PE or mono-PP) or a combination of the two for all components.



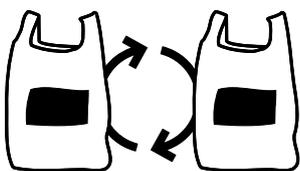
MINIMISE COLOURS OR SELECT PREFERRED COLOURS

Use clear unpigmented material as this has the highest value for recycling.



ENSURE COMPATABILITY OF LABELS FOR RECYCLING

Use only polyolefin label materials that cover minimal surface area to help reduce contamination. Paper labels and other plastics are a contaminant.



INCORPORATE RECYCLED CONTENT

Use the maximum possible percentage of recycled content to help create and support sustainable end markets.



INCLUDE LABELLING FOR RECYCLING

Use the Australasian Recycling Label (ARL) to educate consumers on how to correctly recycle each component of the packaging. For the 'Return to Store' ARL to be applied, REDcycle membership is required.

The following table outlines:

- **Preferred:** best practice design of household consumer soft plastic packaging, aligned with global thresholds of the *CEFLEX Guidelines*.
- **Recyclable with reduced value:** detail on what will be accepted for existing soft plastics recycling in Australia (the *REDcycle program*).
- **Avoid:** Things to avoid when designing household consumer soft plastic packaging.

Guide to selecting materials

COMPONENT	PREFERRED	RECYCLABLE WITH REDUCED VALUE	AVOID (NOT COMPATIBLE)	REASON
Primary material	<p>Use mono-material film grades:</p> <ul style="list-style-type: none"> • Polypropylene (PP) – BOPP/CPP – 90- 100% of the total weight • Polyolefins (PE or PP) – 90-100% of the total weight • Polyethylene (PE) - LDPE/HDPE – 90- 100% of the total weight 	<p>Polyolefins – 70-90% of the total weight</p> <p>PE - LDPE/HDPE – 70-90% of the total weight</p> <p>PP – BOPP/CPP – 70-90% of the total weight</p>	<p>PE - LDPE/HDPE – less than 70% of the total weight</p> <p>PP – BOPP/CPP – less than 70% of the total weight</p> <p>Polyolefins – less than 70% of the total weight</p> <p>Any materials other than PE or PP, including:</p> <ul style="list-style-type: none"> • Polyvinyl chloride (PVC) and Polyvinylidene chloride (PVdC) • Polystyrene (PS) • Bioplastics (e.g. PLA, PHA)/ Compostable materials • Polyamide (PA) • Nylon • Polyethylene terephthalate (PET) • Oxo-degradable and other fragmentable plastics 	<p>A mono-material contains predominantly one material type. In the preferred scenario, at least 90% of the packaging, by weight, is composed of the one polymer type (e.g. PE or PP). Multiple layers of the same material can be considered as mono-material.</p> <p>PE and PP are more readily accepted for recycling through local and international soft plastics recycling systems.</p> <p>Multi-material films, made from differing polymers or materials, make recycling extremely difficult as polymers cannot be separated and recycling streams are therefore contaminated.</p> <p>Materials to avoid can cause significant issues if processed through current soft plastics recycling technologies.</p>

Guide to selecting materials

COMPONENT	PREFERRED	RECYCLABLE WITH REDUCED VALUE	AVOID (NOT COMPATIBLE)	REASON
Secondary material as a laminate	<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 if less than the percentage indicated:</p> <ul style="list-style-type: none"> • Aluminium – less than 1% • Paper – less than 2% • Nylon – less than 3% • EVOH and PVOH– less than 5% • ALOx and SiOX– less than 5% • Acrylic – less than 5% 	<p>The following secondary materials are accepted if their combined percentage is less than 30% or if their individual percentage as part of the pack is:</p> <ul style="list-style-type: none"> • ALOx and SiOX– less than 5% • Acrylic – less than 5% • PVDc – less than 10% • Paper – less than 30% • Aluminium – less than 30% • Nylon – less than 30% • EVOH – less than 30% • EVA – less than 30% • PET – less than 30% 	<p>The following secondary materials are not accepted at any level:</p> <ul style="list-style-type: none"> • PVC • PS • Bioplastics <p>The following secondary materials are not accepted if their combined percentage is greater than 30% or if their individual percentage as part of the pack is:</p> <ul style="list-style-type: none"> • ALOx and SiOX– greater than 5% • Acrylic – greater than 5% • PVDc – greater than 10% • Paper – greater than 30% • Aluminium – greater than 30% • Nylon – greater than 30% • EVOH – greater than 30% • PET – greater than 30% 	<p>Some reprocessors can tolerate a limited mix of polymers.</p> <p>Limit the use of secondary materials as per the preference for mono-material film grades.</p> <p>Secondary polymers should be less than the percentage thresholds by weight as any greater contamination will inhibit the ability for the material to be effectively recycled or damage end products.</p>
Secondary material as an additional component (e.g. labels, wires etc.)	<p>Labels applied to the soft plastic should be adhered to the primary component, and be made from the same material as the primary component.</p>	<p>The following are acceptable:</p> <ul style="list-style-type: none"> • Paper labels- up to 30% by weight • PP or PE labels - unconditional • Rigid valves, lids, spouts- must be PP or HDPE 	<p>Rigid steel/aluminium (e.g. wires, closures).</p>	<p>These items cause contamination in the recycling streams and lower the value of the recycle and/or cause significant inefficiencies during processing (additional sorting and decontamination required).</p>
Colours/ inks	<p>Use "natural" unpigmented materials where possible.</p>	<p>Limit use of inks, lacquers and pigments.</p> <p>Avoid dark colours where possible as this limits the range of end products to only being dark grey or black.</p>	<p>Use of carbon black.</p>	<p>Natural polymers create a higher value recycle as they have significantly more end market opportunities.</p> <p>Inks can discolour the recycle and lower the value.</p>

More information

- For a comprehensive view of the current state of soft plastics in Australia:
 - > APCO (2019), *Soft Plastics Working Group 2018*
- To find out more information about PREP:
 - > PREP Design Pty Ltd (2020), available at: <https://prep.org.au/>
- To find out more information about REDcycle:
 - > REDcycle Pty Ltd (2017), available at: <https://www.redcycle.net.au/>
- To find out more information about CEFLEX:
 - > CEFLEX (2020), available at: <https://ceflex.eu/>
- For a comprehensive guide on soft plastics packaging:
 - > SRU and Helen Lewis Research (2013), *Design smart material guide: flexible plastics packaging*
- For detail on APCO's actions for soft plastic packaging as we work towards the 2025 Targets:
 - > APCO (2020), *Our Packaging Future*

Disclaimer: This document has been developed by the Australian Packaging Covenant Organisation (APCO) with consultation from packaging manufacturers and experts in the waste and recycling industry. The document is intended to be general guidance only and the information contained within has been developed based on current knowledge at the time of publication.

Some information may not be relevant to all packaging types. For specific guidance on individual packaging items and to classify recyclability through kerbside recycling in Australia and New Zealand, please refer to the Packaging Recyclability Evaluation Portal (PREP). PREP is a living and dynamic platform that can be edited or expanded in consultation with a Technical Advisory Committee, as market and infrastructure adapt.

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