Sustainable Packaging Guidelines

The Sustainable Packaging Guidelines (SPGs) are a central part of the co-regulatory framework established by the National Environment Protection (Used Packaging Materials) Measure 2011 (the NEPM) and the Australian Packaging Covenant (the Covenant). The NEPM and the Covenant state that the SPGs are to assist the design and manufacture of packaging that meets the sometimes conflicting demands of the market, consumer protection and the environment.

This document sets out the 10 Sustainable Packaging Principles (the Principles) that make up the SPGs.

Disclaimer
The Australian Packaging Covenant Organisation (APCO) has prepared this report with a high-level of care and thoroughness and recommends that it is read in full. This report is based on generally accepted definitions, data and understanding of industry practices and standards at the time it was prepared. It is prepared in accordance with the scope of work and for the purpose outlined in the introduction. Sources of information used are referenced in this report, except where provided on a confidential basis. This report has been prepared for use only by APCO and other third parties who have been authorised by APCO. APCO and the contributing authors are not liable for any loss or damage that may be occasioned directly or indirectly using, or relying on, the contents of this publication. This report does not purport to give legal or financial advice. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Sustainable Packaging Principles

The Sustainable Packaging Principles ('the Principles') can be used to guide the review of existing and new packaging to identify opportunities for improvement.

The 10 Principles to be considered in the design andprocurement of packaging to improve sustainability are:

1. **Design for recovery;**
2. **Optimise material efficiency;**
3. **Design to reduce product waste;**
4. **Eliminate hazardous materials;**
5. **Use recycled materials;**
6. **Use renewable materials;**
7. **Design to minimise litter;**
8. **Design for transport efficiency;**
9. **Design for accessibility; and**
10. **Provide consumer information onsustainability.**

The high-level intent of adopting the Principles is relatively straight forward, i.e. to:

- Design and procure more sustainable packaging formats; and
- Provide consumer information.

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1. Design for recovery

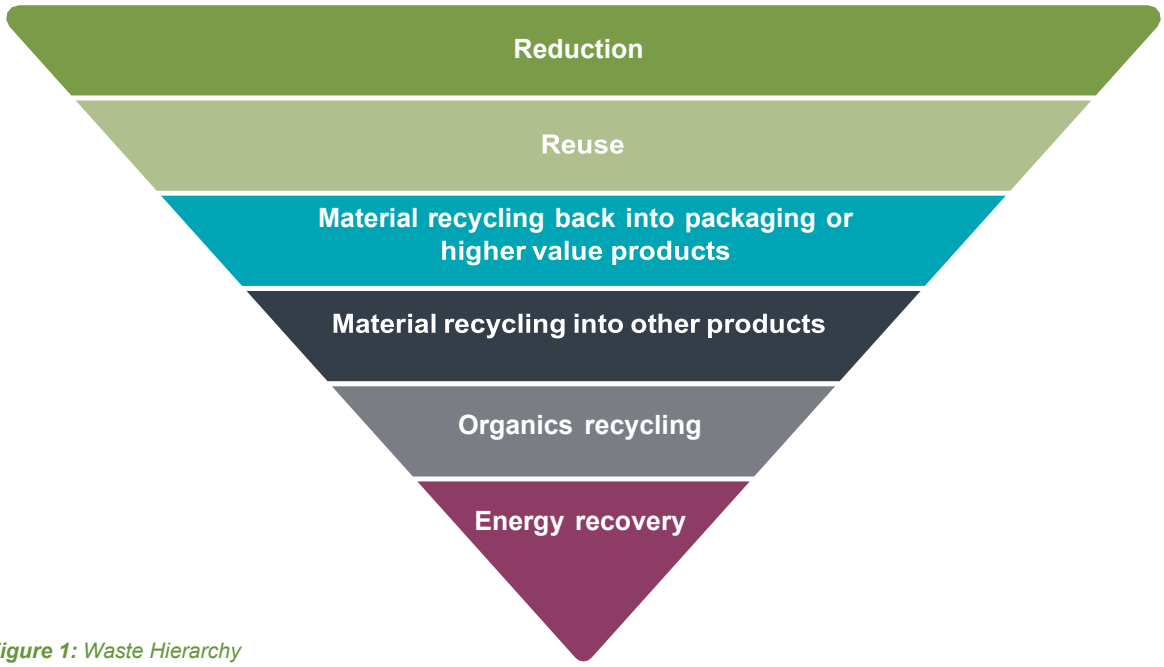

Figure 1: *Waste Hierarchy*

Recovery pathways

The aim

Environment Ministers have endorsed a national target of 100% of packaging designed to be reusable, recyclable or compostable by 2025. Reuse can extend the life of packaging, but it also needs to have a recovery solution (e.g. recycling or composting) at end-of-life.

> **Recoverability:** Recoverability of packaging refers to the availability of systems for reuse, recycling, composting or energy recovery.

The aim is to achieve the highest potential environmental value by following the waste hierarchy (as shown in Figure 1). Avoidance or reduction generally achieves the highest value, followed by reuse, material recycling and energy recovery. The relative position of composting (organics recycling) in the waste hierarchy depends on the product application and available recovery systems.

Why this is important

The quality of recycling and the use of recycled materials is essential in a circular economy, which aims to keep materials in use for as long as possible[1]. This maximises the value retained in the economy, the range of possible applications for which the material can be used, and the number of possible future life cycles. As a result, it minimises material losses and the need to generate more virgin materials.

[1] Ellen Macarthur Foundation (2017) What is the circular economy?, https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy

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Choosing the most appropriate recovery pathway

Decisions about the most appropriate recovery pathway for your packaging, for example whether it should be designed to be reusable, recyclable or compostable, will depend on a range of factors. These could include the type of product, consumer attitudes and behaviours (e.g. willingness to reuse, use of home composting systems), availability of an existing recycling, organics collection or composting system, functionality of alternative materials, costs, and alignment with your corporate sustainability strategy.

Design for reuse

The aim

The aim of this recovery pathway is to extend the life of packaging through multiple uses prior to recycling. Reuse should only be considered if it is likely to achieve a net environmental benefit, considering any additional material requirements, transport for return trips and any additional activities (e.g. cleaning).

> **Reusable:** A characteristic of packaging that has been conceived and designed to accomplish within its lifecycle a certain number of trips or uses for the same purpose for which it was conceived.

Why this is important

In some applications, reuse will achieve the highest net environmental and economic value outcome because it retains the full value of packaging as a manufactured product for a longer period, rather than breaking it down into its material or energy value.

Things to consider

1. Would most consumers/customers return the packaging for another use, or could you establish a collection system?
2. Could you design the packaging to enable multiple use cycles (e.g. so that it is sufficiently durable, safe, hygienic etc.)?
3. How many average use cycles could you achieve and are these sufficient to achieve a net environmental benefit?

Design for material recycling

The aim

The aim of this recovery pathway is to optimise recycling through mechanical processes (organics recycling is considered in the next section). Material recycling can be achieved by using recyclable materials, by avoiding materials or components that may contaminate the recycling process, and by informing consumers about appropriate options for recovery prior to responsible disposal. To contribute to a circular economy, packaging is to be recycled into applications having the same level of quality when possible.

Why this is important

Material recycling has many benefits. It reduces the environmental impacts and costs of disposal, it helps to conserve non-renewable resources, and it provides raw materials for manufacturing that have a lower environmental impact and are often more cost-effective than virgin materials.

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Things to consider

1. Is the primary packaging recyclable through kerbside collection in Australia according to the Packaging Recyclability Evaluation Portal (PREP)?
2. Did the PREP report identify any issues that affect recyclability?
3. Are there any opportunities to change the design of the primary package to improve recyclability? Check the PREP report.
4. If the packaging is not recyclable, could you collaborate with others to establish or improve a collection and recycling service?
5. Does the package include the Australasian Recycling Label (ARL)?
6. Do you need to provide any specific instructions to consumers to improve recyclability e.g. flatten, clean etc.? Check the PREP report.
7. Is the secondary package recyclable?
8. Are there any opportunities to change the design of the distribution package to improve recyclability?
9. Considering your previous answers, do you think that the recyclability of the packaging system has been optimised?
10. If yes, what is the critical area that prevents any further improvement in material recycling? Examples could include: product protection, packaging manufacturing processes, packing/filling processes, logistics, product presentation/marketing, user/consumer acceptance, information, safety, legislation etc.

Design for organics recycling

The aim

The aim of this recovery pathway is to optimise the ability of compostable packaging to be recycled through composting or another organics recycling process. This can be achieved by using a compostable material, by avoiding materials or components that may contaminate the composting process, and by informing consumers about appropriate recovery and disposal.

> **Organics Recycling:** The treatment of separately collected organics waste by anaerobic digestion, composting or vermiculture.

Why this is important

Organics recycling provides a potential recovery pathway for packaging that is not recyclable through material recycling systems, or that might become food-contaminated. It may also assist in increasing the recovery of food waste and other organic nutrients.

Things to consider

1. Is composting the best reprocessing technology to divert your packaging landfill?
2. If yes, is the packaging certified as suitable for composting and other microbial treatment according to AS 4736 or AS 5810? This will depend on the material type as well as shape, thickness, additives, coatings etc.
3. Is the consumer likely to have convenient access to a service that will collect and compost the packaging?
4. If not, can you work with others to establish a collection and composting service to ensure that the packaging is actually composted?
5. Are you providing consumers with information on how to correctly dispose of the packaging?

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2. Optimise Material Efficiency

The aim

Material efficiency aims to reduce material consumption and associated environmental impacts in the packaging lifecycle by optimising the volume and weight of packaging.

> **Optimised (material efficiency):** No further reductions in packaging weight or volume are possible at the present time.

Why this is important

Reducing the amount of material generally saves money and reduces environmental impacts throughout the packaging lifecycle. Environment Ministers have endorsed a national target of phasing out problematic and unnecessary single-use plastic packaging by 2025.

Things to consider

1. Could any component of packaging be eliminated, i.e. is anything unnecessary?
2. Could you use a thinner or lighter material?
3. Could you reduce the size (volume) of the package?
4. Would these changes have any impact on functionality, product protection, safety, consumer acceptability, recovery potential etc.?
   Sometimes material efficiency involves trade-offs with other requirements, but it is important to ensure that efficiency improvements do not increase product damage or waste in the supply chain. Similarly, it might be more efficient to package a product in soft plastic rather than a hard-plastic (lighter weight to transport), but soft plastic is less readily recyclable.
5. Considering your previous answers, do you think the packaging system has been optimised?
6. If yes, what is the critical area that prevents any further improvement in material efficiency? Examples could include: product protection, packaging manufacturing processes, packing/filling processes, logistics, product presentation/marketing, user/consumer acceptance, information, safety, legislation etc.

3. Design to reduce product waste

The aim

The aim is to design packaging to eliminate or reduce avoidable product waste. This includes information on the label to assist consumers to reduce waste.

Why this is important

Packaging design plays a critical role in ensuring that products reach their final destination without any damage or wastage; this is particularly important in the food sector. Each year Australians throw away around 5.3 million tonnes of food that is intended for human consumption[2]. More sustainable packaging design can help to reduce food waste that occurs in the supply chain, at retail or at the point of consumption. Design also plays a critical role in ensuring that consumers can fully dispense the product from its packaging, to both deliver better value to consumers and reduce waste.

[2] Australian Government (2017) National food waste strategy http://www.environment.gov.au/system/files/pages/25e-36a8c-3a9c-487c-a9cb-66ec15ba61d0/files/national-food-waste-strategy.pdf

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Things to consider

1. Do you know how much of your product is damaged and wasted in the supply chain, e.g. due to inadequate packaging, storage or handling?
2. Are there any opportunities to improve packaging to reduce waste in the supply chain?
3. Do you know how much of your product (particularly food) is wasted by consumers after purchase?
4. Are there any opportunities to improve packaging to reduce the amount of product wasted by consumers? For example, does the design of the package allow the product to be completely dispensed? Could the package be designed to dispense a more exact dosage (e.g. for soaps, detergents) or a more appropriate serving size (e.g. single service of meat or fish)?

4. Eliminate hazardous materials

The aim

The aim is to avoid using hazardous substances that could be toxic to humans or other living organisms. Organisations should consider their common law liabilities, assess packaging for potentially hazardous substances that are likely to pose risk, and endeavour to reduce that risk accordingly.

Why this is important

Hazardous substances include those that are toxic to humans or other living organisms, are flammable, explosive or corrosive, are ozone depleting, or contribute to climate change. Examples often mentioned for packaging include heavy metals (e.g. in some inks and pigments), Bisphenol A (in polycarbonate plastics and the lining of steel cans) and plasticisers (e.g. some phthalates in PVC plastics).

If used at levels that exceed regulatory limits, potentially hazardous substances may pose risks to ecosystems and human health. Avoiding or minimising the use of these substances may reduce the costs associated with disposal of hazardous waste from manufacturing.

Things to consider

1. Does your organisation have a risk management approach to the selection of materials, inks, pigments, coatings, plasticisers and other substances used in packaging or its production processes?
2. Does the production of the packaging utilise any hazardous substances?
3. Does the packaging itself contain any potentially hazardous substances?
4. If yes to either of the two previous questions, could they be eliminated or reduced?
5. Does the packaging meet Australian and /or international standards in relation to hazardous substances? For example, the EU Packaging and Packaging Waste Directive's Essential Requirements for Packaging specify that the combined weight of heavy metals (mercury, lead, cadmium and hexavalent chromium) in a package or any of its components must not exceed 100 ppm).
6. Is the packaging likely to contain any hazardous product residue at end of life that may contaminate the recycling process? If yes, consider labelling with the ARL for disposal rather than recycling, and work to establish an alternative collection and recycling program.

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5. Use recycled materials

The aim

The aim is to optimise the amount of recycled content in packaging, considering technical feasibility, consumer acceptability, regulatory requirements (e.g. food contact/safety) etc.

> **Recycled content:** Is the proportion, by mass, of pre-consumer and post-consumer recycled material in packaging (AS/ISO 14021). 'Pre-consumer' material is material diverted from the waste stream during manufacturing (excluding rework). 'Post-consumer' material is material waste generated by households or by commercial, industrial and institutional facilities. The amount of renewable or recycled material is expressed as a percentage of the quantity of packaging material put onto the market.

Why this is important

Using recycled materials in packaging helps to create sustainable markets for packaging recovered from households and other sources. Recycled materials generally use less energy and water to manufacture, and generates lower greenhouse-gas emissions than virgin materials of the same type. Some recycled materials also offer cost savings.

The Australian Government has endorsed a national target of 50% average recycled content across all packaging by 2025.

Things to consider

1. How much recycled content is in your packaging now (tonnes, %)?
2. Could you incorporate a higher percentage of recycled content?
3. Would higher recycled content have any impact on functionality, product protection, safety, consumer acceptability, efficiency etc.?
4. Considering your previous answers, do you think that recycled content in the packaging system has been optimised?
5. If yes, what is the critical area that prevents any further increase in recycled content? Examples could include: product protection, packaging manufacturing processes, packing/filling processes, logistics, product presentation/marketing, user/consumer acceptance, information, safety, legislation etc.
6. Could you incorporate recycled content in any other products that your organisation buys, to help drive end-markets for recycled material?

6. Use renewable materials

The aim

The aim is to support a circular economy for packaging by optimising the proportion of materials that are renewable. All material selections should be based on sound science and a whole-of-life cycle approach.

> **Renewable:** Material that is composed of biomass from a living source and that can be continually replenished. Renewable materials include paper and cardboard from sustainably grown wood fibre, or a biopolymer from a sustainable source.

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Why this is important

Renewable materials such as paper, cardboard and biopolymers reduce demand for non-renewable virgin materials including metals and most plastics. If they are grown using sustainable farming and forestry practices, they are likely to have a lower environmental impact than those generated by the extraction and processing of non-renewable materials.

Things to consider

1. Are any of the materials used in your packaging renewable?
2. If not, is there potential to use a renewable alternative?
3. Is there potential to use renewable materials that have been certified as being from responsible sources, e.g. by Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC)?
4. Considering your previous answers, do you think that renewable material content in the packaging system has been optimised?
5. If yes, what is the critical area that prevents any further improvement in renewable content? Examples could include: product protection, packaging manufacturing processes, packing/filling processes, logistics, product presentation/marketing, user/consumer acceptance, information, safety, legislation etc.

7. Design to minimise litter

The aim

The aim is to design any package that tends to be found in the litter stream (such as fast food and beverage packaging) to reduce the likelihood of it becoming litter.

> **Litter:** Discarded packaging waste that has been disposed of improperly by accident or deliberately in an open or public place. Littered packaging like plastic wrap, cans and bottles can exist in the environment for long periods of time and cause serious environmental issues in some areas, particularly if it enters waterways and sensitive environmental areas where it has potential to be ingested by animals, birds and marine life.

Why this is important

Litter reduces the visual amenity of public places and is a hazard to wildlife. There is evidence of widespread ecological and human health impacts being caused by plastics in the marine and terrestrial environment, including from littered packaging.

Collecting and disposing of litter by local government imposes a significant cost to the community. Litter is also a significant resource loss of valuable recyclable materials.

Environment Ministers have endorsed a national target of phasing out problematic and unnecessary single-use plastic packaging by 2025.

The Australian Packaging Covenant obligates Signatories to the Covenant/APCO Members to report on ‘action that reduces the incidence and impacts of litter’.

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Things to consider

1. Do you understand where, when and how your product will be used and by whom?
2. Is the package likely to be consumed away from home and therefore have the propensity to become litter?
3. To what extent is this packaging type represented in the litter stream? Refer to the National Litter Index.
4. How many separate or easily separable components that could end up as litter does the packaging item have (for example, screw cap lids, and peel-off seals)? Can any be reduced or redesigned?
5. Has the package been designed to minimise the number of separate or separable components?
6. Do you provide advice for consumers on the label to encourage appropriate disposal or recovery?
7. What steps have you undertaken to reduce the occurrence of your packaging in the litter stream?
8. Have options been considered for away-from-home recycling as part of an overall littering abatement program?

8. Design for transport efficiency

The aim

Packaging should be designed to maximise the efficiency of transport through light weighting, fully utilising shipping space (‘cubing out’) and using bulk packaging for distribution including business to business packaging (B2B) where appropriate.

> **Pallet Utilisation:** The percentage of the total available pallet area that is actually occupied by a product.

Why this is important

More efficient distribution packaging can result in significant savings in energy, greenhouse gas emissions, water, packaging material and transport costs.

Things to consider

1. Is there any potential to improve pallet utilisation by redesigning the primary packaging or distribution packaging?
2. Are you optimising pallet utilisation and truck height? Are there any efficiencies that can be achieved?
3. Consider any trade-offs and how they could be managed, for example soft plastics are lightweight but may be more challenging to recycle.
4. Is there an opportunity to switch to more efficient vehicles, hybrid vehicles or renewable energy sources for your distribution fleet?
5. Could you use back-loading to collect and recycle used packaging from customers as a value adding service?

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9. Design for accessibility

The aim

For packaging to be accessible, it must be designed to be easy for the consumer to open, have legible labelling, and not compromise safety or quality. Sustainable packaging cannot meet consumers' needs and expectations if it is not accessible.

> **Accessibility:** Relates to the ease of use a consumer experiences when completing tasks. For packaging, this includes factors such as ease of opening and readability of labels. *https://arthritisaustralia.com.au/accessible-design-division/what-is-accessible-design/*

Why this is important

Easy-to-open and functional packaging is a major consumer concern, as well as a health and safety issue. Some sections of the community have difficulty with product labelling and packaging. For a consumer to get full satisfaction from the product, the packaging needs to be functional and useable—this includes the ability to open and close, and with legible labelling (consider font size and print contrast). Packaging that is difficult to open can contribute to food waste, particularly in hospitals and aged care facilities.

Things to consider

1. Has the consumer's ability to access the product within the packaging been adequately considered in the design process? For example, has a consumer specialist analysed the actions required to interact with the product?
2. Have you considered whether the level of information on the packaging ensures the consumer is aware of its contents and how to open the package?
3. Have you considered the demographic of the consumer who will use the product? Are there any limiting factors typically associated with these consumers?
4. Can changes be made to improve the ability of the consumer to use the product without compromising safety, security or quality?
5. To what extent has your organisation ever received any complaints in relation to accessibility of packaging?
6. Could an alternative design be used efficiently to minimise the requirement for tools such as a knife or scissors? The use of tools, knives, and scissors should be avoided.
7. Have easy open features been clearly explained or performance tested by Arthritis Australia?

10. Provide consumer information on environmental sustainability

The aim

The aim is to provide clear information or advice about any claims made about appropriate disposal or environmental attributes of the packaging (e.g. recycled content or sustainable sourcing of materials) on the packaging or packaged product.

> **Labelling:** Can be in the form of a statement, symbol or graphic on a purchased product at any point in the supply chain, but most commonly used at the final point of sale (e.g. retail).

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Why this is important

Consumer understanding, awareness and behaviour have a large impact on resource recovery and recycling of used packaging materials.

Environmental labelling on packaging must be consistent with AS/NZS ISO 14021:2016 (Environmental labels and declarations—self-declared environmental claims (type II environmental labelling). Failure to properly adhere to labelling guidelines may raise issues of competition and consumer law.

Things to consider

1. Will any environmental claims be made about the packaging item?
2. Has appropriate information about litter prevention been included on all packaging of products likely to be consumed away from home?
3. What environmental issues have been considered during development of the product's marketing strategy, for example, use of environmental claims, logos and consumer education?
4. If the Australasian Recycling Label is to be used on the packaging, have you identified existing systems that will be able to recycle the packaging? Refer to PREP.
5. If a composting logo is to be used on the packaging, have you identified existing systems that will be able to compost the packaging? Refer to the Australian Standard 4736-2006 –Biodegradable plastics suitable for composting and other microbial treatment, and Australian Standard AS 5810-2010 – Biodegradable plastics - Biodegradable plastics suitable for home composting.
6. If a recycled content claim is made, is the minimum level of recycled content specified in accordance with AS/NZS 14021?

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