



sustainable
packaging alliance

Sustainable Packaging Alliance Round Table Series

Round Table Number 13 Summary Report

Design for Recycling

Friday, 13th July 2007

Background

The National Packaging Covenant (NPC) aims to improve the recovery, reuse and recycling of used domestic consumer packaging materials in Australia. 'Design for recycling' aims to ensure that, wherever feasible and appropriate, products are designed to facilitate recycling. For packaging this means understanding how materials are recycled, choosing the right materials, eliminating potential contaminants and providing information for consumers.

The purpose of this Round Table, organised in association with Australian Council of Recyclers (ACOR), was to promote dialogue and information exchange between recyclers and packaging developers (brand owners and packaging manufacturers) on better 'design for recycling'.

Participants contributed to discussions gained to obtain a better understanding of:

- Packaging recycling processes;
- Critical issues for packaging design to maximise recyclability;
- Contaminants in the recycling process and how these can be avoided;
- The benefits of design for recycling;
- Design for recycling case studies; and
- Trends in waste management and recycling which have implications for packaging design.

This report provides a summary of the presentations and discussions of the 13th SPA Round Table.

Design for Recycling

Anne Prince (ACOR) explained that ACOR is the peak industry association for resource recovery organisations. It aims to maximise resource recovery and achieve high value for recycled resources. This means recycling materials back into their original form to gain maximum economic and environmental benefits. ACOR members recycle materials from the following sectors: batteries; glass; tyres; construction and demolition; paper, cardboard and newsprint; white goods; fluorescent lighting; metals; e-waste; plastic; and alternative technologies. ACOR has developed a series of kerbside recycling specifications for various types of post consumer packaging, that is, aluminium, glass, paper, plastics, and steel. These are referred to in the Environmental Code of Practice for Packaging (ECoPP) and indicate what level of contamination is acceptable in recycling systems. ACOR has also developed guidelines for fillers on design for recycling. ACOR is a source of knowledge, expertise and experience in recycling. Anne encouraged all to visit the ACOR website at www.acor.org.au or contact her directly at anne@acor.com.au

Warrick Hassan (O-I Australia) advised that glass is an ideal product for recycling as there are no detrimental effects on properties and even colour is retained. Other benefits of recycling include energy savings and CO₂ reduction as the recycled glass has already been through the fusion process and is close to its final form. Glass must be colour-sorted prior to reprocessing. Clear glass must be 98% clean in order to be reused. Coloured glass is difficult to recycle as the shade requirements for different companies are quite specific. Recycling is also limited by the cost of moving glass between processing plants in different states. There are high losses of recyclable glass in kerbside collection due to breakages. Labels on glass bottles can cause false classification and foil labels can cause sorting rejection by optical sensors. In order to meet the NPC targets for the recycling of glass, changes to current practices are necessary.

Allen Wilkins (Visy Recycling) commenced by saying that Visy Recycling was originally established to collect paper for its own mills but has moved to collect all types of recyclable product. Visy Recycling handles over 1.4 million tonnes of recyclables per annum. Visy recycles glass, paper and plastics (PET, PP and PE). Labelling is critical for consumers to understand whether or not a product can be recycled. Kerbside collection requires a pre-sort to remove any dangerous or large objects which may damage equipment. Material is sorted into commodity types using a combination of manual, mechanical and optical processes. Allan recommended that product designers visit a MRF to gain an understanding of what is involved in the recycling process. The learnings from the MRF visit should be used in the product design. Recyclability (theoretical versus actual) must be considered at the product development stage.

Anne Prince (ACOR) presented for **Richard Lyle of Alcoa Australia Rolled Products** after business commitments caused a last minute cancellation. Alcoa produce 200,000 tonnes of rolled product annually in the form of sheet metal for aluminium cans, foil, and products such as boats, caravans, road signs, license plates and food and medical packaging.

Alcoa sees source reduction as being as important as recycling. The aluminium beverage can weighed 20.8g in 1980. Light weighting and gains made by changing the top of cans have reduced the weight of drink cans to 13.9 grams. Recycling rates have increased steadily from 63.8% in 1996 to 70.3% in 2006. Collection of cans for recycling occurs through kerbside collection, community groups and clubs, etc. Cans are sent directly for remelting or can be sent to a commercial scrap metal dealer who will sell the metal to a local remelting facility or exporter. The recycling process is driven by economic and environmental benefits. The steps of mining, refining and smelting bauxite can be eliminated if aluminium is recycled.



Discussion during the break

Global Trends in Waste Management and Recycling

Ian Coles (Urban Sustainability Strategies) informed the group that more and more waste is being generated annually and that it is very difficult to change consumer purchasing behaviour to reduce the amount to waste from packaging. Most states and territories in Australia have defined targets for landfill diversion. These have provided an impetus for waste reduction and improvement in recovery from packaging waste. Life cycle assessment work has emphasised that waste prevention is the best approach to reducing greenhouse gas (GHG) emissions. Waste sent for recycling performs better in GHG terms than waste sent for energy production. The implementation of Alternative Waste Technologies (AWT) reduces the amount of material being sent to waste

through resource recovery. There is a positive impact of AWTs through the production of outputs such as energy, compost, recyclables, oil and gas. Reducing GHG emissions and placing a cost on carbon will be a significant driver over the next 20 years. Recycling systems of the future need to be simple systems that achieve high results. Companies will want to recover more from the dry recyclable stream, that is, plastic packaging.

Peter Bury (Plastic and Chemical Industries Association) said that the recycling industry's aims have not altered significantly since their inception and they are making progress in new areas whilst also becoming more efficient in old areas. The market is the dictator of whether or not materials are collected. There are 67 reprocessing sites in Australia utilising a range of techniques to collect and process plastic and various end markets are served. The processes used in collecting and recycling product have become more efficient over time. The PACIA guide on the *Plastics Identification Code*, (2003) will give companies advice about what should and shouldn't be labelled as recyclable.

Products and their disposal have often only been considered in terms of "waste". Giving a value to the energy that can be produced from waste can assist in solving some problems. It is important to look at energy usage when we consider the costs and benefits in diverting plastic from landfill. The cost of carbon is also not currently considered. The future does not seem as certain and a cost may be placed on carbon. In addition, the balance of energy in a product compared with that in packaging must be considered. It is important to engage consumers in the discussion and help them understand the benefits of balance as we move into the future.

Outcomes and learnings

There is a consistent theme coming from the Round Table: good communication is vital. Designers need to engage in a dialogue with recyclers. Early and frequent communication is critical to success. Consumers need to be better informed about the recyclability of packaging and how they can effectively participate in recycling programs to maximise returns and minimise contamination.

Sponsorship

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