

“Technology, Innovation and Sustainable Packaging”

Friday 24th June 2005

Background

A kaleidoscope of issues is driving packaging innovation, including the need to differentiate products, reduce costs, increase shelf-life, and meet changing supply chain requirements. Simultaneously, national and international market and regulatory trends are driving industry towards sustainable development. Response to these, often contradictory, drivers is increasing demand for significant technical/innovation advances in packaging and packaging supply chain technologies.

SPA's 7th Round Table explored technical and innovation barriers constraining advancement of sustainable packaging and packaging supply chain technologies. With reference to SPA's preliminary definition of sustainable packaging, a variety of speakers outlined technical/innovation constraints, explored potential solution routes to overcome these and proposed examples of sustainable innovative solutions. In excess of 50 participants interactively responded to the presentations and discussed technological barriers and potential solution routes. This report provides a summary of the Round Table.

Technology, Innovation and Sustainable Packaging

Following an update on the strategic direction of the Sustainable Packaging Alliance by Dr Leanne Fitzpatrick, SPA's inaugural definition of sustainable packaging was introduced by Associate Professor Kees Sonneveld along with the recently developed Sustainable Packaging Indicators. The definition (see <http://www.sustainablepack.org/database/files/Definition.pdf>) aims to differentiate between the macro levels of society, the functional performance of packaging, the environmental performance of materials and the micro level of human and ecosystem toxicity.

A panel of senior industry technology and innovation managers responded to SPA's definition of sustainable packaging. Although there were differences in opinion, the panel generally agreed with the direction of the definition and the associated indicators. Having a definition helps to make sustainable development in packaging tangible. 'Effectiveness' and 'efficiency' were considered crucial issues of the definition but are more or less 'naturally' driven by economic constraints, however the cyclic principle was considered the most challenging element of the definition. Establishing long term, life-cycle assessment based visions for packaging has the potential to shape the way we think about and target packaging and technology innovation. New materials from

renewable sources, requiring low energy input for processing and being compostable at the end of life was advocated as the way to go by one panel member. This triggered a discussion with regard to the sustainability of recycling (including the use of waste paper as a valuable source for manufacturing packaging materials). The main issue however is to think 'outside the box' and create step changing visions which then will guide technology innovation. Innovation willingness and capability were not viewed as holding the supply chain back. The challenge is to find innovations that are economically and commercially viable within a business environment that is focused on reducing costs to remain competitive.



Round Table discussions followed on from the panel and these identified a series of issues participants are struggling with including the lack of clear guidance towards sustainable packaging systems, the Environmental Code of Practice for Packaging (ECoPP) was seen to be far from definitive, the drive for recycling (e.g. NPC II) was not understood as best practice in all cases, and real and accurate information is hard to find, if available at all. The overwhelming message was that the most important immediate need is for tools to assist in collecting and

accessing information and to evaluate environmental benefits in conjunction with economic and social benefits. Participants agreed there is a need for a framework to assist in the collection of relevant data and to assist in decision making and for quantitative measures. The draft SPA sustainable packaging indicators are a great step forward in providing clarity and leading the way towards a tangible way of measuring sustainability and the ECoPP should include such measures.

Overcoming the Technical and Innovation Barriers

Despite the many barriers to technical development and innovation in advancing packaging sustainability, many new ideas have come to market in recent years and altered the packaging industry's operating environment. Successful innovation achievements were highlighted including their constraints and challenges, approach taken, critical success factors and the barriers remaining. Participants were provided with a copy of these presentations.

Dr John Scheirs from ExcelPlas gave participants an introduction to the different types of degradable polymers, the three main performance criteria that these polymers need to pass in order to be considered a degradable polymer and outlined the current state of development of an Australian Standard for biodegradable materials. The manufacture of these of polymers was presented, along with their characteristics, how they degrade, and some unsubstantiated labelling claims by manufacturers. John finished his presentation with an overview of packaging waste trends and the opportunities that exist such as applications of compostable bags for food scraps for restaurants, kitchens, and garden waste.

Richard Roberts from Pira International (UK) presented an overview of a current UK project to report on best practice examples of grocery and household products retailing, resulting in minimised food and packaging waste in the home. Countries that are being visited are Australia, New Zealand, China, Japan, Poland, Sweden, USA and Canada. Information is being collected on issues such as operational costs and benefits, capital expenditure to implement innovations, approaches to trialling the innovations and changes required in the supply chain. Richard presented examples of new technologies to reduce waste outputs and the barriers faced in their implementation.

Round Table participants identified various examples of challenges and how these were overcome in the development of more environmentally acceptable packaging systems. These included examples with relatively minor technical challenges (such as replacing a cardboard outer with a shrink wrap tray for tea bags), to the use of more sophisticated techniques to identify hazardous conditions in the physical distribution (leading to significant reduction in losses by introducing some relatively simple changes), and the development of advanced recycling technology allowing food contact of the recycled end product.

Outcomes and Learnings

The Round Table clearly emphasized there is a definite willingness for technology development and innovation but there are restricting factors such as economy of scale/critical mass, restricting regulations and standards, and market acceptance. SPA's road-test of its definition of sustainable packaging and feedback confirmed that there is a need for a definition and mechanisms to create visions for sustainable packaging development. More importantly though, Round Table participants were looking for tools to aid immediate decision-making that is consistent with meeting sustainable outcomes. These would provide the "missing piece" of business information to embed the environmental impact into day to day decision-making. SPA is developing a tool, PIQET[®], to fill this gap.

Participant Feedback

86% of participants rated the Round Table as a 7/10 or greater when asked was it worthwhile attending. Participants feedback on what was useful included:

“Hearing other people's perspectives on sustainability”

“Learning about biodegradable materials and their limitations”

“Understanding how issues, trends and possible solutions affect others further up, down and outside the chain”

Ideas put forward for future Round Tables included:

- A focus on retailers – their perspectives on the SPA definition, use of recyclable and biodegradable materials.
- Packaging performance assessment in the supply chain.
- Recycling versus composting.

Find out more

A full report including copies of the presentations and details of the panel and round table discussions feedback, conclusions and learnings is available in PDF format at a cost of \$125 + 10% GST.

For further information or to order your copy of the full report please contact: Associate Professor Kees Sonneveld on (03) 9919 8043 or kees@sustainablepack.org