



sustainable
packaging alliance

Sustainable Packaging Alliance Round Table Series

Round Table Number 15 Report

Degradable packaging: sustainability opportunities and challenges

Friday, 30th May 2008

Background

Degradable plastics including bio-based and oxodegradable resins are fast becoming an important material option for consideration by the packaging sector. There is strong market demand in some areas as consumers perceive degradable packaging as better for the environment. The purpose of this Round Table, organised in association with Plastics and Chemicals Industries Association (PACIA), was to explore the sustainability of degradable plastics used for packaging. Presentations and discussions covered:

- Environmental, economic and social implications of degradable plastics;
- Australian standards and guidelines for degradable plastics;
- Current status of end-of-life infrastructure and future plans; and
- Communication strategies across the packaging supply chain.

This report provides a summary of the presentations and round table discussions.



Session 1

Tim Grant, (CSIRO/Centre for Design, RMIT) gave a challenging presentation on the necessary long term shift to a ‘bio-economy’ and the potential role of bioplastics within it. The bio-economy is a conceptual idea that an economy is increasingly supported by renewable fuels and materials rather than historical reserves of biomass in the form of crude oil, gas and coal. There are competing demands for biomass at present, including biofuels, biopolymers, bio-chars, renewable energy, carbon sequestration, building materials, food and fibre. Production of biofuels is already contributing, along with other factors such as rising oil prices, to food shortages and rising food prices in some markets. It is therefore important to consider the impact of new demands for biomass on both the economy and the physical environment.

Patrick Crouche (Australian Competition and Consumer Commission) provided a useful introduction to the Trade practices act (TPA) and its implications for green marketing. One company was recently prosecuted for false and misleading claims about degradability under section 52 of the Act. This prohibits any conduct which is misleading and deceptive or likely to mislead or deceive. Intention does not need to be established for a breach of the Act to be established. ACCC guidelines have recently been updated under the title *Green marketing and the Trade Practices Act*, and are available on the ACCC web site. Patrick concluded that it is difficult to give ‘hard and fast’ rulings about many types of green claims, but he strongly encouraged any company involved in marketing to download their guidelines.

Dr Paul Bainton (Department of Environment, Water, Heritage and the Arts) began his presentation with the question: what problem are we trying to solve with degradable plastics? Is it the use of renewable resources, reduced volume of waste or reduced impact of litter? This is something which needs to be clarified. A series of Australian Standards is being developed for degradable plastics (not just in packaging) and the first of these have been published. These are not specific to materials but to disposal environments such as commercial compost, home compost, soil and water. It is very unlikely that any of the standards for degradable plastics will become mandatory.

Peter Bury (PACIA) argued that regardless of whether a material is durable or degradable it should be selected on its merits. Degradable polymers should be used where they add functional value. PACIA developed its product stewardship guide (*Using degradable plastics in Australia: a product stewardship guide and commitment*) in response to several issues and concerns, including false and misleading advertising which was creating consumer confusion and contamination of recycling and composting streams. A critical issue for design with degradable plastics is the need to choose the right material, for the right degradation time in the right disposal environment. There are two commitments in the product stewardship guide: promotion of clear and accurate labelling which complies with the TPA and AS 14021 (*Environmental labels and declarations: self-declared environmental claims*); and a reference group to develop and oversee use of the guide. PACIA is also promoting third-party verification that degradable materials comply with relevant Australian or international standards.

Session 2

The purpose of this session was to discuss the options for industry-wide initiatives which could improve the sustainability of packaging made from degradable plastics.

Dr Kishan Khemani (Plantic Technologies) suggested that the main drivers for growth in bioplastics are its sustainability as a raw material, consumer awareness and demand, brand owners and retailers demanding ‘green’ products, future proofing against rising oil and plastics prices and functional performance. Challenges for suppliers of starch-based resins include water supply, energy costs, price of corn, use of corn for food vs. plastic or fuel, land use (choice of crops) and labour costs. Opportunities to improve the sustainability of the biopolymer industry in Australia include desalination to supply irrigation water; use of alternative energy, a bio-waste collection system; and a composting infrastructure.

Dr Richard Smith (Ampcor) suggested that degradable plastics could help to reduce degradable plastics and food going to landfill through source separation at a household level, using compostable plastic bags, and either home composting or collection and delivery to a commercial composting facility. Some issues which would need to be considered include labelling, agreement of composters that packaging can come back, and a recognisable logo for acceptable packaging, and education of government, consumers and industry.

Ben Morris (Municipal Association of Victoria) commented on degradable packaging from a local government perspective. Issues for local government include increasing amounts of waste

being generated, greenhouse emissions from degradation, increasing resource recovery and diversion, litter management and contamination of recyclables with non-recyclable materials. The community needs clear information and education, distinct pathways for waste materials, and known destinations. Solutions include litter prevention and ensuring that all packaging is recyclable.

Bill Grant (Sustainability Victoria) provided a state government and composters' perspective. The Victorian government is supporting increased recycling of conventional plastics, voluntary reductions in single-use bags, and sustainable design through groups such as SPA. Composters believe that plastics are the major contaminant of compost products, and that degradable plastics have the potential to help but only if they degrade in time. Some composters use degradable bags for limited commercial organics collection services. However, composters do not currently have the technology to process many degradable plastics, and they are not easy to distinguish from other plastics. Plastics create a litter problem at processing sites, and can jam equipment and screens. Most degradable plastics take too long to break down in composting. Durable or multiple use plastic products sourced from sustainable production may deliver better outcomes.

Todd Anderson (Olympic Polymers) commented from the perspective of a plastics recycler. He made a distinction between biodegradable polymers and oxodegradable polymers (synthetic polymers with a prodegradant additive). There has been very little research on the environmental impacts of oxodegradable resins after they break up in soil. The recycling industry also has a potential legal liability if degradable materials are unknowingly collected with recyclable materials and end up in a recycled polymer. In contrast, biodegradable polymers have many potential benefits including the creation of new jobs and technologies. The sustainability of degradable packaging needs to be improved through genuine product stewardship in industry, i.e. designing to achieve environmental benefit and capture of resources; and more government funding for recovery of all waste streams.

Outcomes and learnings

A very clear conclusion from the Round Table was that degradable polymers *may* contribute to the increased sustainability of packaging but there are a number of principles which must be met:

- They must be selected on the basis of a perceived environmental need (e.g. waste, litter, non-renewable resources);
- They must be 'fit for purpose' and their degradation properties must be appropriate for the disposal environment at end-of-life (landfill, water, recycling, composting etc);
- Suitable recovery systems need to be established for biodegradable polymers with the support of all key stakeholders, including polymer suppliers and manufacturers, local government, state government and composters; and
- Consumers need clear and accurate communication on the benefits of degradable polymers and how to dispose of the product appropriately.

Sponsorship

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