

Lightweighting container designs at source

Appeared in Glass Magazine December 2006 by John Towers

Industry associations in the UK are pursuing the goal of reducing the glass weight per container unit to cut the amount of glass going for landfill.

A specialist conference took place in the offices of British Glass, the UK confederation of glass manufacturers, at Sheffield to review the work carried out in a campaign to lightweight container designs at source. The event was hosted by British Glass and its technical and consultancy arm Glass Technology Services; WRAP, the packaging waste campaign organisation; and Faraday Packaging, a partnership of researchers, packaging producers and packaging users.

Delegates attended from glass container manufacturers; large retailers; food producing companies; research bodies; universities; drinks companies; and from other associated bodies. Presentations were made by GTS, WRAP and Faraday. They included an overview of, and the outcomes from, the original Container Lite project; the status of the four current GlassLite projects in the wines, spirits, beers and foods sectors; and the impacts of colour control.

Dave Dalton, general manager of GTS, says: "Great interest has resulted from the conference and many of the companies that were represented on the day have demonstrated interest in further participation. The outlook for the projects and for future partnerships is very promising."

Nicola Jenkin, from the retail innovation team at WRAP, looked at how the Container Lite project had stimulated innovation in the UK retail sector. WRAP has seven programmes aimed at reducing the amount of waste produced in the UK. Its programmes cover the construction, manufacturing, organics, retail, consumer, business growth and local authority areas.

"The UK produces 29 million tonnes of household waste a year, of which 75% goes to landfill," Ms Jenkin says. "That includes 4.6 million tonnes of packaging waste, and 50% of household waste which comes from retail. The UK also produces 5.2M tonnes of food waste a year, worth £424 per person per year."

Its strategic engagement includes working with the retail sector in the UK. Twelve major retail groups, representing 92.1% of the UK grocery market, have signed the Courtauld Commitment which commits them to supporting WRAP in its objectives of designing out packaging waste growth by 2008; to delivering absolute reductions in packaging waste by 2010; and to identifying ways to tackle the problem of food waste.

An innovation fund is working to stimulate innovation. The aim is to minimise the risk of new product concepts; so far 106 proposals have been received, of which 34 projects have been approved. Subject to contract, £5.5 million has been assigned to the fund which is estimated to be able to offer a best case reduction of 693,000 tonnes of waste- £7.94 per tonne compared with the £52 per tonne it costs to send waste for landfill.

The glass container initiative has been termed right-weighting, rather than lightweighting, and involves WRAP working with British Glass and Faraday Packaging. WRAP has also been working with the wine industry to encourage it to

import wines to the UK in bulk for local bottling, rather than importing wine ready-bottled.

Other activities include identifying potential projects; building the case for change; facilitating solutions; and promoting best practice. "We need to mainstream waste minimisation," Ms Jenkin says.

She presented a vision of how benefits could be realised by embedding change into society to cut resource consumption. Stages include consumer trial; retail implementation; consumer demand for more sustainable products; sustainable design of mainstream products, leading to more consumer trials and so on round the circle again.

Container-Lite

Dave Dalton from Glass Technology Services, the technical consultancy arm of British Glass, discussed the technical aspects of the Container-Lite 1 project.

"People dispose of bottles and jars by unit items, not by weight," says Mr Dalton. "Reducing the typical container weight will therefore proportionately reduce the waste weight."

The project developed understanding of manufacturing and market situations to identify the barriers to lightweighting. The role of GTS and glassmakers was to determine technical limitations; to see how much container weights could be reduced, and to establish limitations on shape and design.

GTS worked with Allied Glass Containers and Beatson Clark. "They both produce extremely large ranges of containers in complex and difficult shapes," Mr Dalton says. "If these could be lightweighted, the potential was good." There was a requirement for new technologies, and the AgentQC technology described on page xx is being tested on production lines to optimise its potential.

More recently Rockware Glass, part of Ardagh Glass Group, has developed a 70cl spirits bottle that weighs only 298g. The new bottles should be available next year. Rockware has spent 18 months working with WRAP on the specifications for the new design.

"Glass manufacturers don't call the shots though," Mr Dalton stresses. "All the supply chain needs to be engaged." This includes retailers, brand owners and manufacturing customers of packaging suppliers.

A successful lightweighting project offers benefits in less raw material usage; less energy consumed per unit product; and better competitiveness against rival materials. Lighter weight also means lower transport costs and less fuel used, plus it gives the industry in general a greener image.

More than 150,000 tonnes of waste container glass could be removed from the UK waste stream alone, but only with substantially more effort, Mr Dalton says. "The project has been highly successful in identifying major potential weight savings in glass destined for landfill," Mr Dalton says. "Significant tonnages have already been achieved and more are being delivered."

Nick Kirk, also from GTS, looked at the Colourite project to maximise cullet additions in container glass production. "If mixed colour collection continues to grow, there will

be less available colour-separated cullet for clear and brown glass container production,” he says. “We would be unable to maximise the environmental benefits of closed loop recycling, and it would increase the cost of cullet processing to colour-separate.”

Cullet should be considered a raw material, Dr Kirk says. “The quality of cullet is critical for maximum utilisation.”

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