

The Colourite Project

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Glass Technology Services Ltd (GTS) based in Sheffield, UK, has recently completed an 18 month long project, known as Colourite. The project, supported by WRAP with collaboration from project partners which included glass processors, container glass manufacturers and retailers and various technical organizations, addressed the barriers to maximising cullet addition in container glass manufacture.

This project was successful due to the active engagement of all elements of the supply chain - from the waste glass collectors to the major retailers. With this level of co-operation, the project team were well placed to tackle the complex issues which influence cullet use including: technical aspects of the colour contamination of processed cullet in the production of clear container glass and marketing issues, such as the possible affect on the consumer buying decision should the colour of clear glass become slightly green. The project was not designed to counteract the growing level of mixed colour glass collection but to highlight the consequences that higher levels of mixed colour collection will have on clear glass colour quality in the future.

Essentially, the project was designed to maximise the amount of furnace-ready cullet that can be recovered from glass waste streams. In simple terms, the UK has a large, unsatisfied demand for clear glass but an oversupply of green glass. Mixed colour collection systems are effective in collecting large quantities of glass but, once mixed, separating the valuable clear glass is problematic and cross contamination with green glass becomes a major issue.

The project initially looked at technical solutions which would allow clear glass furnaces to produce an acceptable product from a feedstock containing typical colour-contaminated cullet. This technical phase of the project began with a detailed literature search, progressed through laboratory-scale melting and culminated in full-scale manufacturing trials.

To help container manufacturers counteract any colour contamination, the GTS team developed a robust but simple sampling method for measuring the degree of colour contamination in the cullet and a user-friendly model to predict the effects of adding the decolourisers to already complex batch 'recipes'. The Excel-based programme quickly guides busy furnace managers through the procedure, and is already being used by the industry.

Another important result of the work has also been the development of a specification for colour contamination of processed glass which makes use of the new sampling method and has been agreed by both the glass processors and the container manufacturers.

Tackling the issues from the end customer perspective, the second phase of the project explored the impact that using various shades of glass (clear versus varying shades of green) for food and drink containers has on consumer perception and attitudes. The research, conducted by the Psychology of Design group at the University of Leeds, has shown that, in many cases, the colour and clarity criteria adopted by glass manufacturers, brand owners and marketers are much more stringent than those required by the consumer.

The Colourite project complements other work being carried out by GTS to address the UK's glass colour imbalance, for example, undertaking a project to encourage bulk importing of wine and bottling in lighter green bottles manufactured in the UK.

The full report on the Colourite project can be found at www.wrap.org.uk and further details including a copy of the colour predictive model can be obtained from info@glass-ts.com

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