

Optimum Packaging

The state of the supply chain today

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I Background

Getting the right balance between packaging material used and product protection for the avoidance of waste is of paramount importance if we are to optimize product packaging systems to minimize environmental impact.

The ISTA (International Safe Transit Association) and its Executive Vice President International, Greg Wood of Edge (Member of the STFI-Packforsk Group), recognizes the importance of this balance. The ISTA is the only worldwide organization specialized in creating testing standards for pre shipment evaluation of the fitness for purpose of packaging and the training of packaging professionals to carry out such evaluations.

The employment of competent pre shipment testing of packaged product, such as those created and published by the ISTA, is an efficient way of assessing whether packaging is optimized, over or under packaged.

This proposal combines data collection, real life damage monitoring, laboratory evaluation and carbon footprint assessment to evaluate the current situation regarding the environmental impact of packaging versus product wastage balance for a range of representative product groups and individual brands in Europe.

Edge will utilize its own expertise and the full resources of STFI-Packforsk to undertake the study.

Edge is seeking support for the project from a multi client group of Brand Owners, Retailers and Packaging Converters, and relevant trade associations.

2 Objectives

To improve the level of understanding of packaging's role in minimising supply chain waste by quantifying the current level of optimization achieved by a range of European fmcg packaging solutions.

In order to achieve this object the project will:

For a number of examples of packaging solutions within selected product sectors in the European fmcg market examine their relative:

- Material content (primary, secondary and tertiary)
- Carbon footprint of packaging
- Performance in distribution and storage laboratory simulation
- Damage rate in actual distribution and storage
- Carbon footprint of damaged product
- Volume of primary, secondary and tertiary packed product
- Product price point

Compare and evaluate the relative performance of existing packaging solutions within each selected sector to explore material content and carbon footprint and damage rate and/or laboratory performance ratios

Illustrate the scale of product sectorial environmental improvements that can be achieved by adopting best in class performance.

Highlight scope for material reductions against those targets currently set within the supply chain.

3 Scope

A representative range of packaging solutions from each product sector will be drawn from a range of Western European countries.

Five product sectors will be examined representing a range of packaging material solutions; packaging solutions will be materially similar.

Between 6 and 10 packaging solutions will be examined in each selected product sector.

Examples of product sectors and packaging that may be chosen:

- Cooking sauces (glass jar, metal screw cap, label, corrugated collation tray, shrinkwrap)
- Tea (carton, plastic wrap, corrugated case)

- Washing up liquid (plastic bottle, plastic cap, label, corrugated collation tray, shrink wrap)
- Mineral Water (plastic bottle, plastic cap, label, corrugated collation tray, shrink wrap)
- Aseptic/semi aseptic juices (Carton, plastic closure, corrugated collation tray, shrinkwrap)
- etc

4 Work programme

The author is not aware of any similar study having been made previously, but is aware of at least two relevant studies which will have significant contribution to this project. The first is the European shopping basket (European/STFI-Packforsk), the second is the European fmcg test method which is currently in the process of adoption by the ISTA.

Considerable experience of laboratory evaluation of packaging to evaluate performance in distribution and storage and carbon footprinting (environmental impact assessments) exists at STFI-Packforsk.

1. Review the information contained in the 'European Shopping Basket' study for information relevant to selection of product sectors and packaging solutions as well as data on packaging weight and price point etc.
2. Conduct a review of all other relevant materials available in the European packaging research community which contain material relevant to the study
3. Select the product sectors to be studied. Sectors will be selected by the project working group including all sponsors using a matrix based evaluation
4. Identify 6 – 8 branded solutions within the five selected product sectors to be studied which provide coverage of a range of European geographies, price points, packaging shapes weights and styles. Each solution will be the same type of product and same product weight or volume, thereby establishing a common unit of measure for comparison purposes.
5. Record a description of each packaging solution.
6. Measure the weight and volume occupied (cube) of all primary packaging components and measure and calculate the weight and volume occupied (cube) of secondary and tertiary packaging associated with the primary unit.
7. Assess the carbon footprint of each packaging solution using PAS 2050 methodology.
8. Examine supply chain damage records for each product if available.

and/or

Where damage records are unavailable undertake field study (quantitative measurement of level of damage through the supply chain) for each branded solution.

and/or

Assess the performance of each packaging solution against the ISTA test methods to evaluate damage levels against a reproducible reference standard.

9. Calculate a damage figure

10. Assess the carbon footprint of product wastage due to damage using PAS 2050 methodology.
11. Prepare a database containing the information collected in order that comparisons can be made and relevant ratios calculated.
12. Calculate material content, carbon footprint, damage rate and/or laboratory performance ratios
13. Identify best in class performance and range within each product sector.
14. Calculate potential reduction in carbon footprint in each sector by adoption of best in class performance.
15. Compare the packaging weight reduction potential against targets currently set in the supply chain to indicate viability

5 Sponsor Benefits

- Establish a methodology to determine the total carbon footprint contribution of packaging including product losses within a packaged product system
- Fully understand how a range of packs compare to best in class on a number of important parameters including
 - Carbon footprint
 - Damage
 - Cube utilization
 - Pack weight
- Establish data to support or counter pressures for packaging reduction on grounds of waste reduction
- Influence and steer the project in terms of category and sample selection
- Be named as a sponsor to the study and therefore receive PR as a result of article publication and conference presentations
- Be seen as proactive in environmental and carbon issues
- Receive full detail of project results rather than overviews
- Network with other supply chain participants and potential suppliers and customers

6 Additional Industry Benefits

- Quantify the carbon footprint reduction potential within the five product sectors studied through adoption of best in class performance
- Extrapolate benefits to overall packaging sector

7 Cost and Timeframe

Minimum funding of £140,000 plus expenses (up to a maximum of £14,000) are required in order to undertake the project as described in this proposal. Individual sponsors for the project are being sought at a rate of £14,000 per sponsor.

The project would take approximately nine months to complete.

For more information or to discuss this project, please contact

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