



Press Release

Europe-wide comparative analysis of ambient food packaging

Life-cycle assessment for metal cans, glass, cartons and pouches: Using carton packaging saves CO₂ emissions and fossil resource consumption by up to 60 per cent

April 2009. For the first time, a Europe-wide life-cycle assessment for food metal cans, glass jars, carton packs and pouches has now confirmed that using carton packaging saves CO₂ emissions and fossil resource consumption by up to 60 per cent. The recent, independently reviewed study conducted by the Institute for Energy and Environmental Research (Ifeu) sees the overall weight and the material of the packaging as the main drivers for the environmental impacts of a packaging system for ambient food products (such as soups and tomato products).

Environmental performance of packaging has become a key factor in evaluation and decision-making for policymakers, the food industry, retailers and consumers alike. Properly substantiated assertions relating to the impact of a packaging solution on the environment can only be made on the basis of valid facts. SIG Combibloc therefore commissioned the Ifeu Institute in Heidelberg, Germany, to analyse and assess the environmental impact of different ambient food packaging systems in a comparative life-cycle assessment. The independent Ifeu is one of Europe's most reputed environmental research institutes, with a clientele that includes ministries, international environmental associations, Germany's Federal Environmental Agency and many corporations. The current study was carried out in compliance with internationally recognised ISO standards for life-cycle assessments and considers the entire life cycle of a packaging.

Michael Hecker, Head of Group Environment, Health & Safety at SIG Combibloc: "Our objective was to gain well-founded information on the environmental performance of the most commonly used packaging for ambient food products. In addition to our aseptic

and retortable carton packs, the analysis looked at food metal cans, glass jars and retortable pouches”.

Relevant environmental impact categories under the spotlight

In this new life-cycle assessment, all the factors and processes that have an impact on the environment along the product life cycle of these packaging systems were critically examined and assessed: from the extraction and processing of the raw materials to the package manufacturing process, transport, filling process and distribution to the point of sale and recovery or disposal of the packaging after use. The life-cycle assessment investigated and assessed all relevant key environmental impact categories relating to resource consumption and substance emissions. With respect to resource consumption, the study covers the use of fossil raw materials, primary energy and the use of nature. With respect to emissions, it is the CO₂ output and the associated climate change, particulate matter emission, the eutrophication and acidification of soil and watercourses that were investigated. CO₂ emission in particular is categorised as a significant issue in today's environmental policy.

Weight and material of the packaging are the decisive factors

The results of the study show that the overall weight and the material of the packaging are the key factors to consider when assessing the environmental impact of an ambient food packaging system. They are the main factors that determine the environmental impact of a packaging solution along its entire life cycle.

In the current study, the aseptic and the retortable carton packaging systems show the best results in all environmental impact categories (with the exception of the category 'use of nature'), in terms of resource consumption and substance emissions. The most striking outcomes are the positive results in the impact categories 'consumption of fossil resources', 'use of primary energy' and 'CO₂ emission/climate change'. The study shows that in the impact category 'consumption of fossil resources' and 'CO₂ emission', carton packaging causes up to 60 per cent less environmental impact than the comparative types of packaging considered in the life-cycle assessment.

According to the study, the reasons for these significant results are the light weight of the carton packs, which is due to the resource-efficient use of raw materials. Carton packs use significantly fewer fossil resources than food metal cans, glass jars and pouches because they contain a high share of paper board, which is obtained from the renewable raw material wood. At around 70 per cent, this raw material is the main

component of carton packs. Consequently, in the impact category 'use of nature', the carton lies behind the packaging systems that are manufactured mainly using fossil resources. Wood used for the unprocessed paper board to produce carton packs is a renewable resource. Unlike non-renewable fossil resources, the availability of wood is virtually unlimited when coming from sustainable managed forests.

Tim Kirchen, Global Food Manager at SIG Combibloc: "World-wide, reducing CO₂ emissions and saving fossil resources in packaging are becoming increasingly vital. For the international food and retail industry, it is becoming more and more important that decisions on packaging portfolio are made on the basis of facts and substantiated analyses that consider the environmental impacts of packaging along the entire life cycle. Only in this way can comprehensive conclusions be drawn about the environmental performance of the packaging. The current life-cycle assessment clearly shows that specifically with respect to environmental aspects, carton packs are the ideal packaging solution".

Due to the globalisation of the food and retail industry, the current life-cycle assessment does not only focus on specific countries but - for the first time - has a Europe-wide approach. Michael Hecker says: "This means we have incorporated into the investigation, for instance, considerable differences in recycling rates. The results, which are based on the average recycling rates of the various European nations, have undergone an in-depth sensitivity analysis. They show that, even with varying recycling rates, carton packaging performs significantly better than the assessed packaging alternatives in almost all environment-related impact categories".

The results of the life-cycle assessment carried out by the Ifeu have been monitored, critically reviewed and confirmed by independent LCA and packaging experts Professor Dr Walter Klöpffer, Hans-Jürgen Garvens and Dr Rolf Frischknecht. Professor Dr Walter Klöpffer, chairman of the review panel and Editor in Chief of the *International Journal of Life-cycle Assessment*: "With the issues of sustainability and climate protection becoming more and more urgent, life-cycle assessments are also gaining in importance. A key feature in keeping these studies relevant is their basis, and finally their independent critical verification, which in the present study was done in full compliance with the ISO standards".

Caption:

For the first time, a Europe-wide life-cycle assessment for food metal cans, glass jars, carton packs and pouches has now confirmed that using carton packaging saves CO₂ emissions and fossil resource consumption by up to 60 per cent.

Photo: SIG Combibloc

SIG Combibloc is one of the world's leading system suppliers of carton packaging and filling machines for beverages and food. In 2008 the company achieved a turnover of 1,249 million Euro with around 4,100 employees in 40 countries. SIG Combibloc is part of the New Zealand based Rank Group.

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