



## Press Information

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Latest analysis of food metal cans, glass jars, carton packs, pouches and plastic pots

### **IFEU life-cycle assessment compares environmental impacts of long-life food packaging: best environmental performance goes to carton packs**

**January 2014.** In a life-cycle assessment carried out by the Institute for Energy and Environmental Research (IFEU), the environmental impacts of the main long-life food packaging solutions in current use have been compared. The result: compared to food metal cans, glass jars, retortable pouches and plastic pots, the carton pack has the best environmental performance. Compared to the other packaging solutions included in the study, using carton packs can save CO<sub>2</sub> emissions by up to 63 per cent, and consumption of fossil resources by up to 69 per cent. According to the study, the main drivers behind the environmental impacts of a packaging solution are the material used, and the quantity of the material.

Michael Hecker, Head of Group Environment, Health & Safety at SIG Combibloc: “The market for long-life packaged foods is changing all the time – in addition to new products, from time to time new packaging solutions also come onto the market, or existing packaging systems are modified. With this most recent life-cycle assessment we’ve commissioned, we aimed to take these developments into account and obtain solid information, based on the latest life-cycle assessment findings, about the environmental impacts of the main packaging solutions currently used for long-life foods such as soups, sauces, tomato products, vegetables and ready-meals. So in addition to our aseptic and retortable carton packs, the study also looked at food metal cans, glass jars, plastic pots and retortable pouches”.

For this purpose, the Institute for Energy and Environmental Research (IFEU) in Heidelberg (Germany) was commissioned to analyse and evaluate in a Europe-wide life-cycle assessment the environmental impacts of the various packaging systems in accordance with the ISO standard 14040ff stipulated for life-cycle assessments. The independent IFEU Institute is one of Europe's top environmental research institutes, also working for, among others, government ministries, international environmental and conservation organisations, Germany's Federal Environmental Agency, and various companies and corporations.

### **Overall product life-cycle under the microscope**

In the life-cycle assessment, all key environmentally relevant factors and processes that come into play across the life cycle of the packaging system were critically examined and evaluated: beginning with the extraction and processing of the raw material used to manufacture the packaging, through the processes of manufacturing and transporting the packages, the packaging of the food, and distribution to retailers, as well as the recycling or disposal of the packaging after use. This type of evaluation is the only assessment method that examines the environmental profile of a packaging as a whole, rather than just focusing on a single aspect.

In the current life-cycle assessment, all key environmental impact categories that are relevant to the resource are investigated and assessed, along with the emission-related categories. In relation to the utilisation of resources, for instance, these categories include consumption of fossil resources and primary energy used, as well as impact on abiotic resources. In respect of emissions, it is the criteria relating to CO<sub>2</sub> emission and the associated climate change, the impact on the ozone layer, transport intensity, particulate matter emission, summer smog and the eutrophication and acidification of soils and watercourses that are of interest.

### **Material used for the packaging and material quantity are the decisive factors**

The results of the study show that, when assessing the environmental impacts produced by a long-life food packaging, the key factors are the material used to manufacture the packaging, and the quantity of the material used. These are the main variables influencing what impacts a packaging solution has during its product life-cycle.

In the study, the *combibloc* aseptic carton and the retortable *combisafe* carton pack from SIG Combibloc have the best results in all environmental impact categories – in terms of resource consumption and emissions. The most striking findings are the positive results in the impact categories 'Consumption of fossil resources', 'Use of primary energy', and 'CO<sub>2</sub> emission/climate change'. The study shows that in terms of fossil resource consumption and CO<sub>2</sub> emission, using carton packs generates substantially less environmental impact than the

other packaging solutions considered in the study – and it does so using considerably less primary energy.

According to the study, the reasons for this are first and foremost the low weight of the carton packs, which is due to the resource-efficient use of raw materials, and the very good environmental performance of the unprocessed cardboard. Thanks to their high content of paper board made from wood, a renewable resource, carton packs use significantly fewer fossil resources than food metal cans, glass jars, plastic pots and retortable pouches. At around 70 per cent, wood is the main material of the carton packs. If forests are managed responsibly, the wood to produce the paper board is virtually unlimited.

### **Also ideal in environmental aspects**

Michael Hecker: “The findings of the latest life-cycle assessment, which was monitored and critically reviewed by independent LCA and packaging experts, confirm the results of a study we had commissioned in 2009 on the life-cycle assessment of long-life food packaging. And the results go further than that, because even when compared to improved or new packaging solutions that are now available to the global food industry, in environmental aspects too carton packs are the ideal packaging solution”.

Also in the present case, the study was not focused on individual countries, but instead takes a European-wide approach. This meant significant differences in recycling rates were factored into the investigation. The findings, which are based on the average recycling rates in the European nations, have undergone an in-depth sensitivity analysis. This proves that, even with varying recycling rates, carton packs perform better than the packaging alternatives in all impact categories.

That applies not only in the area of long-life packaged foods, but likewise in all other market segments in which products are available in carton packs from SIG Combibloc. This too is verified by life-cycle assessments. So, with the current Europe-wide life-cycle assessment for food packaging and the earlier Europe-wide life-cycle assessments for packaging for UHT milk (2012) and packaging for non-carbonated soft drinks (2011), SIG Combibloc has a complete, valid dataset that includes the life-cycle assessment evaluation of carton packs compared to packaging alternatives from every market segment. The overall picture across all studies shows that in environmental terms, carton packs perform significantly better than the competing packaging systems.

*SIG Combibloc is one of the world's leading system suppliers of carton packaging and filling machines for beverages and food. In 2012 the company achieved a turnover of 1,620 million Euro with around 4,950 employees in 40 countries. SIG Combibloc is part of the New Zealand based Rank Group.*

### Picture Captions:

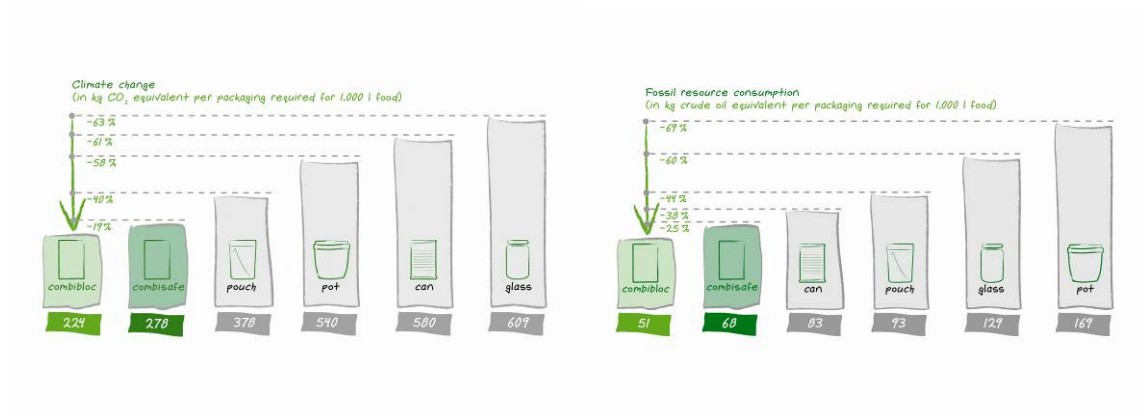
### Chopped Tomatoes\_Icons / Soup\_Icons:



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**Photo: SIG Combibloc**

## Climate Change / Fossil Resource consumption:



Compared to food metal cans, glass jars, retortable pouches and plastic pots, using carton packs can save CO<sub>2</sub> emissions by up to 63 per cent, and consumption of fossil resources by up to 69 per cent. According to the study carried out by the Institute for Energy and Environmental Research (IFEU), the main drivers behind the environmental impacts of a packaging solution are the material used, and the quantity of the material.

**Photo: SIG Combibloc**

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