

Q&As relating to the study of two different sandwich packs (a rigid plastic lunchbox and aluminium household foil)

What were goals of the study and who conducted it?

The main goal of the study was to challenge the existing consumer belief that aluminium household foil generally has a far greater environmental impact than other solutions. A life cycle assessment (LCA) was conducted to investigate the environmental performance of household aluminium used to pack a sandwich. The results of this assessment were compared to those of a reusable plastic box, another commonly used pack for sandwiches. The study was conducted on behalf of the European Aluminium Foil Association (EAFA) and executed by IFEU (The Institute for Energy and Environmental Research).

What were the parameters investigated in the study and what are the results?

The base scenario compared the environmental impact of household foil, including all elements of its production and disposal, to a reusable plastic box washed in an energy efficient dishwasher. The plastic used to make the lunchbox was not included as it is used many times during the course of the lunchbox life. The IFEU study found conclusively, the impacts caused by cleaning a plastic lunchbox are equivalent or in some cases higher than the impact of an appropriately sized piece of aluminium foil performing the same function.

How do the results relate to consumers in their daily lives?

For consumers, these scientific findings are certainly very encouraging as, until now, aluminium foil was not readily associated with an environmentally friendly solution for this application. This LCA clearly demonstrates that aluminium foil is a responsible choice both as a sustainable option and in terms of environmental performance. It is practical and hygienic, providing a very good degree of protection for homemade snacks against the quality-impairing effects such as light, air, or foreign aromas.

Were other parameters, not included in the base scenario, looked into?

Different user behaviours and end-of-life parameters were also examined in a number of sensitivity scenarios: different foil thicknesses, number of sandwiches and different detergents. All scenarios of the LCA, which was performed in accordance with the relevant ISO standards (ISO 14040 and ISO 14044) which prescribes the need for an independent critical review process, showed that the aluminium household foil performed equal to or better than the plastic box.

Can the study results be objective when it was conducted by the aluminium foil industry?

The LCA study was performed in accordance with the relevant ISO standards (ISO 14040 and ISO 14044) and included the prescribed critical review process. The independent review panel

confirmed the IFEU findings and conclusions. IFEU, have conducted many LCAs of this type, including ones for the German Federal Environment Agency.

What is the IFEU?

The Institute for Energy and Environmental Research (IFEU) is a non-profit ecological research institute. It was founded in 1978 as an independent centre of excellence for environmental research by scientists from the University of Heidelberg. Currently the IFEU has a staff of more than 70, mostly scientists in the fields of biology, chemistry, physics, geography, and engineering. About two thirds of IFEU's research projects and reports are commissioned by clients in the public sector (local, national and international government agencies) and about one third by commercial clients and non-governmental organisations.

What exactly is a life cycle assessment (LCA)?

A life cycle assessment is an internationally recognised methodology which enables the user to model product systems to determine the environmental impact and damage caused by these systems. The original purpose of LCA was to examine the complete life cycle of a product, beginning with its production and going on to include its in-service life all the way through to its final disposal after use. This holistic approach of evaluating the complete life cycle of a product gave this method its name.

LCAs were the first and currently are the only instrument for environmental assessment that has been globally harmonized through international standards (ISO 14040 and ISO 14044).

The distinctive advantage of the LCA is the broad holistic lifecycle perspective which is considered. If only a single process step or a portion of the life cycle of a product is examined, considerable misinterpretations regarding the environmental impacts caused by this product could be made.

Which environmental aspects are covered by this LCA?

A wide range of environmental impact categories and inventory level indicators are covered. The environmental impact categories considered in this study are Climate change, Acidification, Photochemical ozone formation, Terrestrial as well as Aquatic Eutrophication, and Human toxicity: PM10. The inventory categories included are Total Primary Energy Demand (CED total) and Non-renewable Primary Energy Demand (CED non-renewable) as well as the Use of Water.

Why weren't the aspects of the production of the plastic box and the energy consumed in the process considered in the study?

Since the plastic lunchbox is a reusable solution, the impact of the manufacturing process plays only a negligible role over the long lifetime of the box. Aluminium household foil, on the other hand, is a disposable product and the manufacturing processes and related consumption of energy resources must be considered.

Why weren't other snack wrapping materials also included in the study?

The study restricts itself to the comparison of aluminium household foil and plastic lunchbox as these two packing solutions both offer a comparable (high) level of protection for homemade snacks/sandwiches.

Cling film, paper bags, and baking paper are other wrapping materials used for homemade snacks. Why can't these also be considered environmentally friendly alternatives?

Of course, it's possible to use these wrapping materials too. However, not all of them offer the same functionality and protection offered by aluminium household foil or the reusable plastic lunchbox.

Also, the purpose of the study was to investigate the environmental impact of the household foil; not to compare it with all other sandwich packaging alternatives.

The use of aluminium household foil is banned in some kindergartens and schools in some European countries. What are the reasons?

Aluminium foil's supposed poorer environmental performance has (occasionally) made it an "off limits" material, which sometimes has resulted in a banning of its use. The reusable rigid plastic box, on the other hand, is commonly judged as very environmental friendly. The IFEU assessments prove otherwise.

The findings of this LCA study challenges the common consumer belief that a disposable product has a far greater environmental impact than a reusable solution. It shows that aluminium household foil is a sustainable option that performs no worse and in some impact categories even better than the reusable plastic lunchbox.

If there's still space in the dishwasher for the lunchbox, why shouldn't it be put in? That doesn't do the environment any more harm!

For the purpose of this study it was assumed that the dishwasher was only run fully loaded. From a LCA point of view the total impact of the wash was allocated between all items in the dishwasher. The plastic lunchbox was correspondingly allocated its portion of the resources consumed, i.e. water, electricity and detergent.

Why not wash the lunchbox by hand?

A study done at the University of Bonn showed that dishwashers use less energy and water than washing dishes by hand under running water or in a water filled sink and as such has the lower environmental impact.

Is just wiping the lunchbox, which is not really dirty, with a paper towel an option?

Yes but equally the aluminium household foil could be reused instead of being disposed of. However, both options are sub-optimal from a hygienic point of view.

How should the used aluminium household foil be disposed of?

Although aluminium foil is 100% recyclable whether this occurs depends on national collection and recycling systems. In some countries aluminium household foil can be disposed together with packaging and follows the corresponding recovery route which can be either material recycling or energy recovery. In other countries it is disposed in the household waste.

In the base scenario of the study aluminium foil is assumed to be disposed of in the household waste, (this scenario would also include disposal at the workplace or at school), and assumes a corresponding recycling rate of 0%. As in some European countries collection and recycling of aluminium foil takes place, the influence of the potential benefit from a higher than zero aluminium recycling rate was assessed in a sensitivity scenario. A similar scenario was carried out for higher than zero incineration rates with energy recovery.

What is EAFA and what are its activities?

The European Aluminium Foil Association (EAFA) is the international body representing companies engaged in the rolling and rewinding of alufoil and in the manufacture of aluminium closures and alufoil containers as well as of all kinds of flexible packaging. Its more than 100 member companies are based in Western, Central and Eastern Europe. Founded in 1974, it has its roots in associations dating back to the 1920s.

The EAFA has a broad field of activities and services it provides to its members. On the one side the EAFA optimizes the flow of information at the international level, for example keeping members up-to-date on the latest legislative developments. To do this EAFA surveys and evaluates statistical data to ensure an exact market analysis. On the other side EAFA's ever-increasing public relations work aims to re-enforce the general public's perception of aluminium foil as an excellent packaging material throughout Europe. This requires a proactive, comprehensive information campaign on the topic of aluminium foils on the basis of candid and objective data and independent studies such as this one.

Further information:

Guido Aufdemkamp, Director Communication

www.sandwich.alufoil.org

The European Aluminium Foil Association is the international body representing companies engaged in the rolling and rewinding of alufoil and in the manufacture of aluminium closures, alufoil semi-rigid containers and of all kind of flexible packaging. Its more than 100 members include companies in Western, Central and Eastern Europe.