

PVC CLING FILMS

Enhanced sustainability,
less food waste



vinyl ^{plus}
COMMITTED TO
SUSTAINABLE DEVELOPMENT

 Vinyl Films
& Sheets Europe



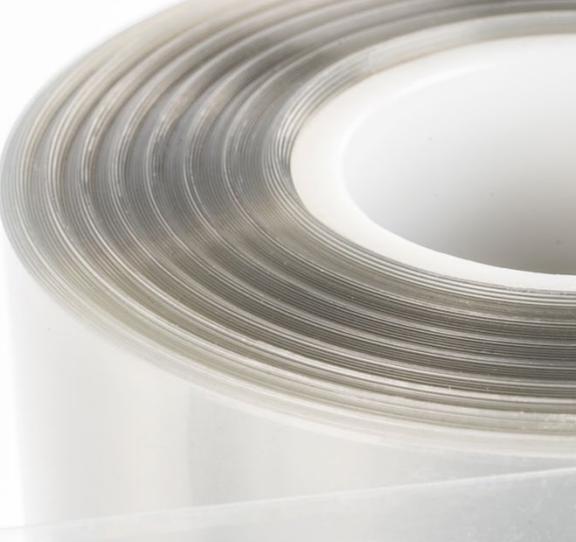
PLASTIC FOOD
PACKAGING
PLAYS A CRUCIAL
ROLE IN ENSURING
HEALTHY
AND SAFE FOOD
FOR ALL

1 Safe food for all

Plastic food packaging plays a crucial role in ensuring healthy and safe food for all.

According to FAO, plastic packaging protects foodstuffs during processing, storage and distribution from:

- _ contamination by dirt (by contact with surfaces and hands)
- _ contamination by micro-organisms (bacteria, moulds, yeasts)
- _ contamination by parasites (mainly insects)
- _ contamination by toxic substances (chemicals)
- _ influences affecting colour, smell and taste (off-odour, light, oxygen)
- _ loss or uptake of moisture (evaporation or water absorption).



Food waste in the EU-28 is estimated at 88 million tonnes, a 20% waste of the total food produced.

(FUSIONS EU Project – Report 2016)

Scientific literature agrees in considering cling films as a “*high-quality food wrap film which makes food available with greater safety assurance from microorganisms, biological and chemical changes, keeps it fresh, and also, decreases the risk of food wastage by enhancing its shelf-life*”.



PVC cling films function:

- _ Food preservation
- _ Food safety
- _ Avoid food waste

PVC cling films represent a sustainable choice for fresh food packaging, not only for their technical, functional and environmental performance, but also because they contribute to reducing the environmental impact of the food itself, extending its useful life and minimising food waste.

2 PVC cling films: the right choice

PVC stretch films are the most used plastic films for the packaging of fresh food because of their excellent functional properties, which allow to preserve the organoleptic characteristics of products for a long time. But PVC films present significant advantages from an environmental point of view, too.

Environmental advantages & technical benefits

A Life Cycle Assessment (LCA) applied to PVC cling film production carried out in 2018 by the independent consulting firm Life Cycle Engineering (LCE – www.lceengineering.eu) confirms that:

- despite slightly different physical properties, both alternative plastic and PVC films are able to provide an effective and reliable protection;
- while GWP¹ is generally aligned for both alternative plastic and PVC films, CED² and fossil resource consumptions are lower for PVC.

¹ Global Warming Potential – potential contribution to climate change due to the amount of greenhouse gases released by production chain processes

² Cumulative Energy Demand – direct and indirect energy consumed along the production chain of the product



PVC CLING FILMS: CONTRIBUTION TO FOOD WASTE REDUCTION³



Meat: **-67%**

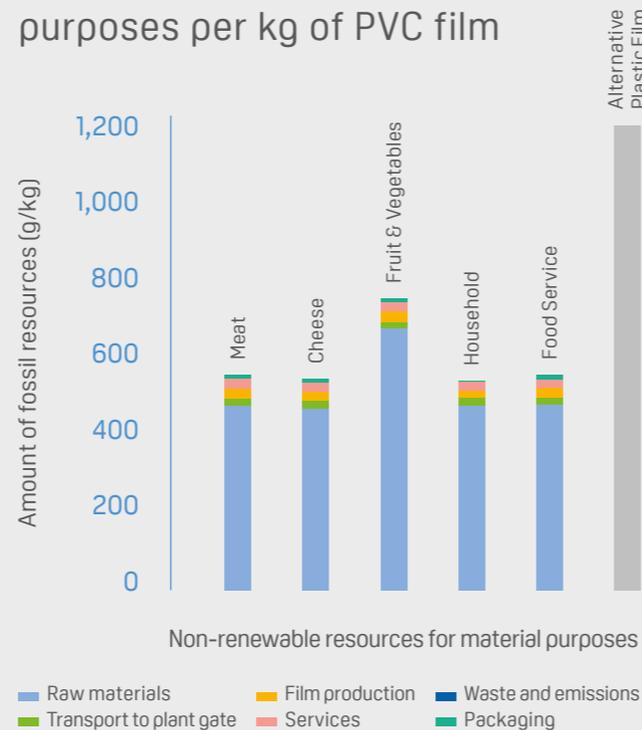


Cheese: **-40%**



Apple: **-47%**

Fossil resources for material purposes per kg of PVC film



One of the main advantages of PVC films is the high permeability to water vapour compared to existing alternatives. This feature is particularly important in the packaging of fresh products such as vegetables or meat. A low permeability to vapour, in fact, can lead to the formation of condensation that favours the proliferation of bacteria and micro-organisms, as well as altering the product from a qualitative and sensorial point of view.

Provided that all the analysed films fully respected the regulations in force, tests carried out on bacterial proliferation showed that the 4-day bacterial load of the products packed with PVC films was between 30 and 100% lower than that of the food packed with alternative films.

Furthermore, the recognised excellent machinability of the PVC cling films utilised in the food industry or by retailers generates further benefits in terms of lower machine maintenance, reduced consumption of materials, reduced waste of materials and efficient use of natural resources.

³ Unpackaged vs packaged food. Based on a FAO study 2013: *Food Wastage Footprint. Impacts on Natural Resources.*

PVC cling film environmental advantages compared to alternative plastic films

- Cumulative energy demand: **-20%**
- Fossil resource consumption: **> -50%**
- Bacterial proliferation (1-4 days): **> -30%**



The UN Sustainable Development Goals (SDGs)

The 17 Sustainable Development Goals of the 2030 Agenda for Sustainable Development, were adopted by world leaders in 2015 to address the global challenges such as poverty, hunger, inequality, climate or environmental degradation.



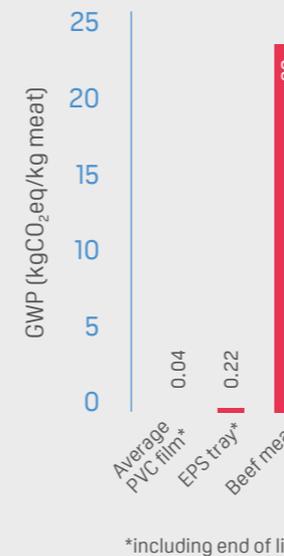
3 PVC cling films contribution to the SDGs

The LCA study shows that the environmental impact related to GWP associated to packaging production (PVC film and EPS tray) and its disposal at the end of life is very small compared with the packaged food impact (see for example meat in the table graph below).

Furthermore, PVC cling film saves more waste than it creates. *“If, due to being badly packed, the contents are spoiled, ten times more waste occurs than that generated by the production of appropriate packaging”* (J. Kooijman, *Journal of Waste Management and Resource Recovery*, 1996). By providing effective protection, PVC cling films allow to reduce food waste, mainly at consumer and retail levels, where main losses occur in developed countries.

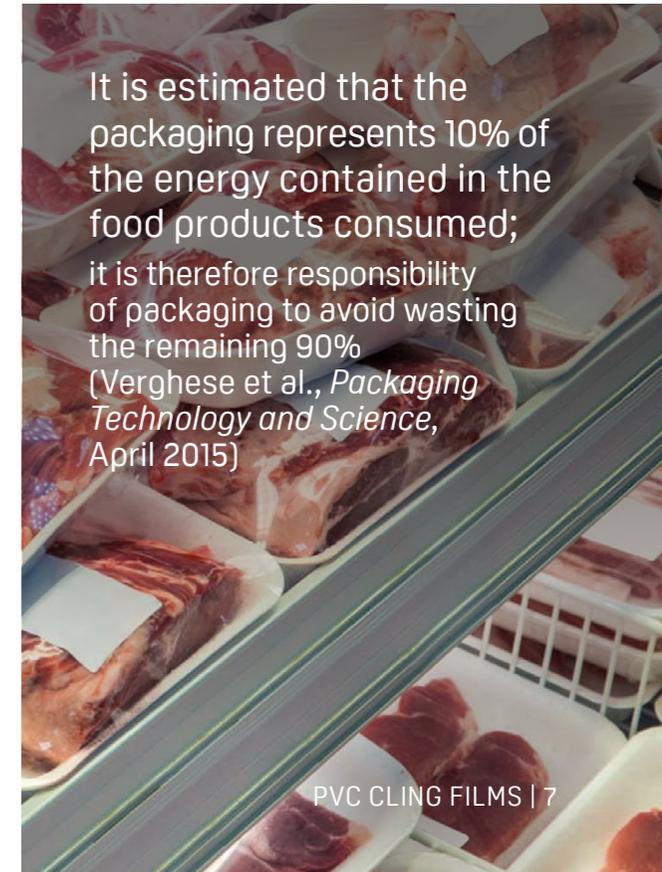


GWP of PVC film and packaged product: meat case study



PVC cling films allow to reduce food waste

PVC cling film producers represented by Vinyl Films & Sheets Europe (VFSE) are committed to continuously improve the sustainability of their productions and products. This is an ongoing process that affect several aspects of the business.



It is estimated that the packaging represents 10% of the energy contained in the food products consumed; it is therefore responsibility of packaging to avoid wasting the remaining 90% (Verghese et al., *Packaging Technology and Science*, April 2015)



Raw materials

According to the LCA study, raw materials account for more than 80% of the total impact of PVC cling films for each environmental indicator.

Through their participation in VinylPlus® – the European PVC industry’s 10-year sustainability programme (www.vinylplus.eu) – VFSE members are proactively contributing to enhance the PVC value chain’s sustainability.

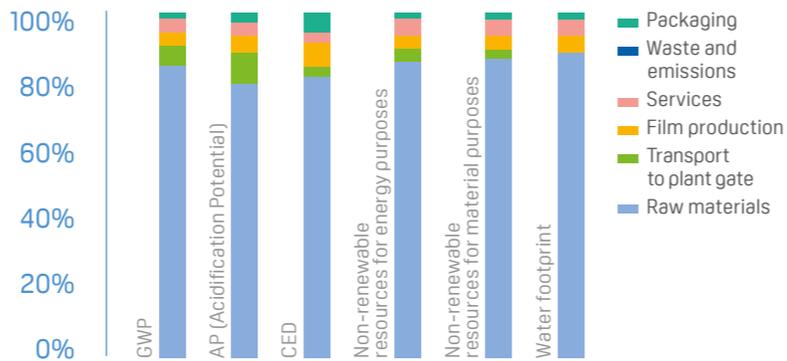
In terms of reduction of raw materials environmental impact, the VinylPlus Voluntary Commitment targets include:

- _ 20% reduction in energy consumption for the production of PVC resins by 2020;
- _ the development of the ASF (Additives Sustainability Footprint) methodology to assess the sustainable use of additives.

Formulations

VFSE members do not use Substances of Very High Concern (SVHC) of the REACH candidate list, and are committed to continuously improving the environmental impact of their formulations.

PVC Cling Films for Meat – Indicator Breakdown



Recycling

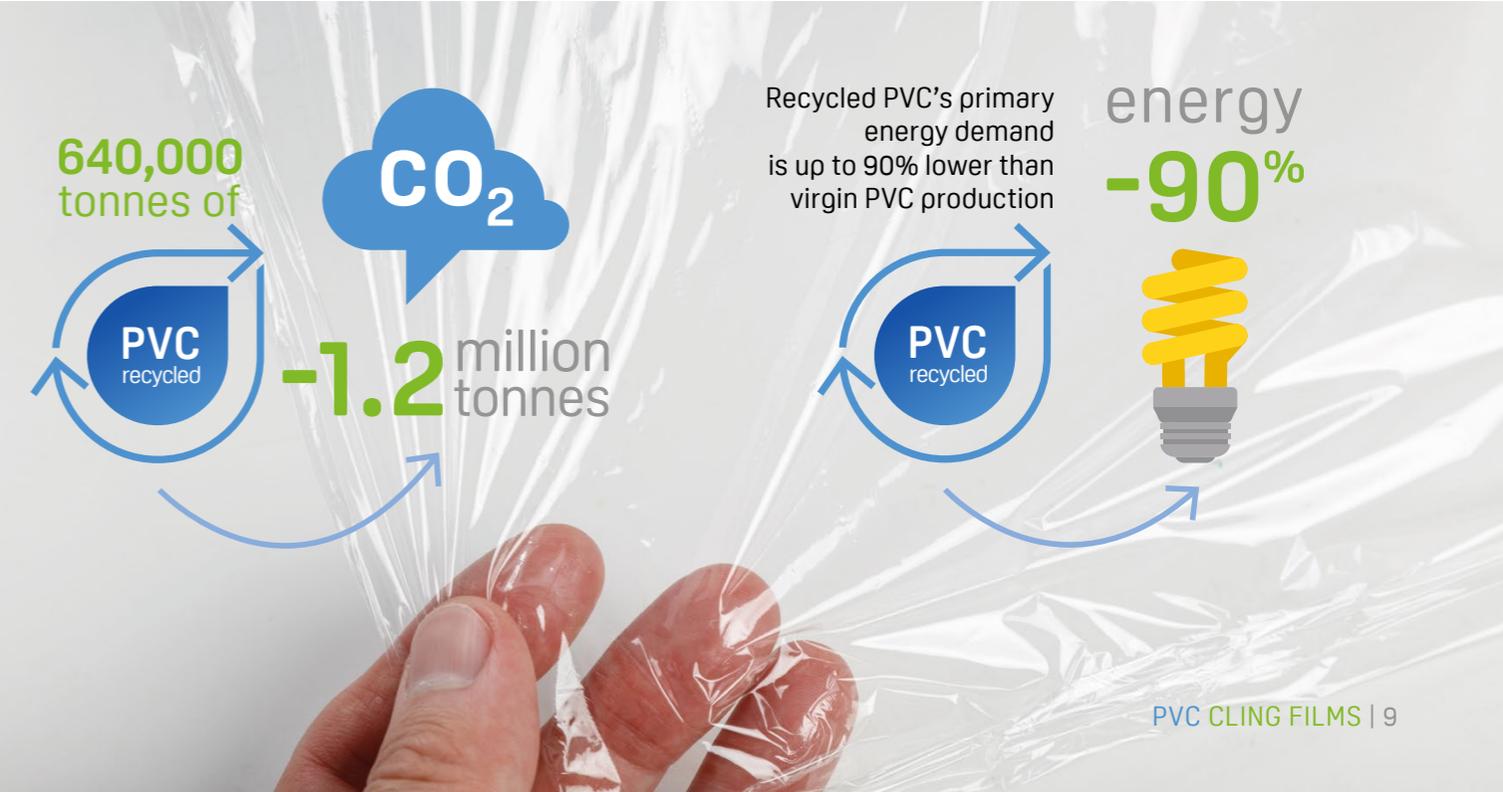
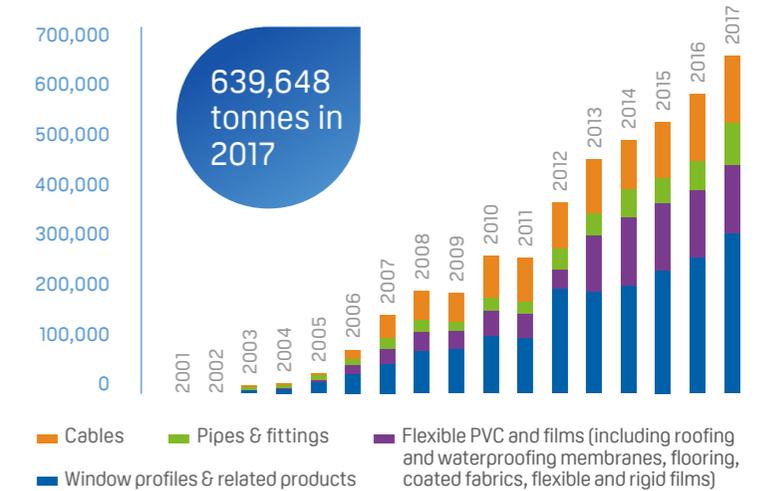
PVC cling films are fully recyclable: more than 90% of the waste generated in the production process is recycled either internally or externally.

Post-use cling film recycling is currently more difficult due to the weakness of the collection systems and possible contamination by food residues.

Nevertheless, VFSE members contribute to the VinylPlus collection and recycling schemes, aiming at recycling 800,000 tonnes/years of PVC by 2020, as well as to studies and research for difficult to collect and/or recycle PVC waste streams.

The PVC industry is currently working on the possibility to recycle such waste streams through chemical recycling technology.

PVC recycled within the Vinyl 2010 and VinylPlus frameworks



4 Contribution to the SDGs at a glance

The chart below summarises the contribution of the PVC cling film industry represented in VFSE to the SDGs.

Functional contribution



Target 2.1

- _ Food waste reduction
- _ Food preservation
- _ Longer shelf-life
- _ Food safety
- _ Lower risk of contamination

Raw materials, formulations and production



Target 7.3



Target 12.2
Target 12.4



Target 13.1

- _ Reduced energy consumption
- _ Sustainable use of additives
- _ No SVHC
- _ Reduced fossil resources depletion

Recycling



Target 12.5



Target 13.1

- _ Recycling 800,000 t/y of PVC by 2020
- _ CO₂ savings from PVC recycling



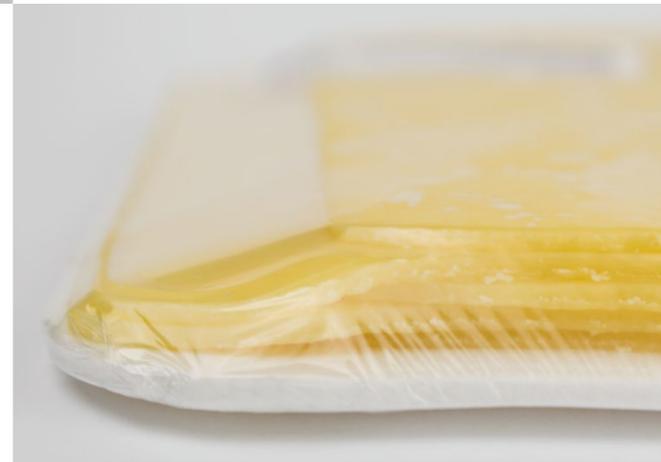
About VFSE

Vinyl Films & Sheets Europe (VFSE) is the European association representing the European suppliers of plastics sheets and foils. VFSE's mission is to provide a network for European manufacturers, to stimulate the industry's scientific advancement and to promote its sustainable development.

VFSE members of the Packaging Working Group in 2018:



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VFSE

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