



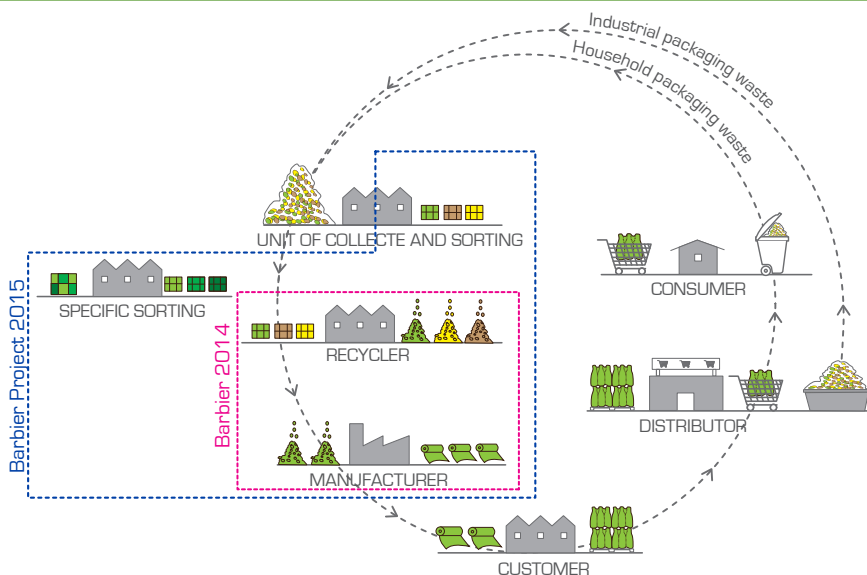
RECYPLAST® FILM

Barbier Group proudly gets involved in protecting the environment. Ecology and sustainability are among our primary objectives and priorities.

It is several years now since we joined the circular economy!

Even though we had a significant experience in the use of recycled raw materials in sectors such as agriculture and retail, industry has always been a poor user. That's because of important technical obligations (shrinkage, stretching...) due to random quality raw material.

The growing raw material flow (extension of sorting Instructions) and sorting techniques evolving, we can now reconsider these solution.



ADVANTAGES

- Recyplast® is the only one film using LDPE granules obtained by the regeneration of **used plastic foil post-consumer**.
- One «+» regenerated selection to ensure the best product return and especially **regularity**.
- A controlled regenerated raw material source of supply.
- A total traceability between the sorting facility, the regenerator and the Barbier Group.
- Very little impact on our film making process.
- Less environmental impact.

Barbier Group offers various regenerated ranges, from the most basic (uncertain quality) to the most sorted (optimum quality). According to the chosen quality, **we can insert between 15 and 50 % of regenerated material on the film composition.**

Environnemental Impact (ACV product) Film with 15% of post consumer raw material. Film 55µm classical compared to a Film 55µm 15% of rege.	
Non renewable resources depletion (kg eq SB)	- 6 %
Climat change (kg eq CO ₂)	- 9 %
Water consumption (m ³)	- 16 %

Comparison performed for a total of 1000 kg.

Results obtained with the software e-DEA eliPack, the LCA Elipso software that has been critically reviewed by expert. The results presented were the subject of an internal critical review.

DISADVANTAGES

- Contact with food certificate impossible at the moment,
- Surface aspect,
- Limited brilliance and transparencys.

Summary of analysis			
Product		Recyplast® with 15%(global)of neutral regenerated HQ	
		Reference	
Basic data		Classical	RPe
Dimensional characteristics			
Width (mm)		1450	1450
Medium thickness (µm)		51.0	51,5
Thickness dispersion (µm)		6.0%	6.3%
Physico-chemical characteristics			
Skrinkage, SL		750	
Skrinkage, ST		0	
Tensile stress at break, SL		19.8	de -10 à -15%
Tensile stress at break, ST		8.0	
Mechanical characteristics			
Elongation at break, SL		610 cN	
Elongation at break, ST		380 cN	de -5 à -10%
Optical caracteristiques			
Transparency (%)		94.4	de -5 à -10%
Brilliance (u.b.) under 20° incidents		75.0	de -5 à -15%
Conclusion :		Shrink properties OK Fall of tearing Attention to brilliance and transparency	



RECYPLAST®: Your waste will made tomorrow's products!

Produce film and tubes for industrial use with after use recycled material, it is now possible thanks to the combined efforts of BARBIER Group and the establishment of different sectors.

This would obviously require complete and modeled integration: from the waste collection to its conversion in a new product. But why should integrate ourselves? In order to have the control of our waste and to give security to our customers in the supplies sustainability and in the batches reliability and traceability.

1) BEFORE

The origin of the material to be recycled can be diverse:

- a) Household waste through the extension of sorting instructions (eco-packaging / valorplast),
- b) Agricultural waste through the collection organised by APE (Agriculture, Plastics and Environment),
- c) Industrial waste through our own collection from our customers and from Recyfilm.

The Barbier Group sources of supply in recycled materials are various:

- Sorting centres for households,
- French recuperator for industry and logistical warehouses,
- French recuperator for agriculture with APE.

How to guarantee, secure and optimize the source of our supplies for recycled materials?

- By rigorous statement of work and standard specifications which will be determinate by Eco-Packaging
- By the choice of our partners depending on the different world, to extract the best in quality

We get these sorted wastes in bale form or pallet strapped, mostly sorted in the following way for Barbier:

- By type: Polyethylene (PE) only with a margin of error of about 2 or 3%.
- By colour: transparent or coloured

2) BARBIER GROUP

The Barbier Group has long time worked to develop several formulations of a large panel of samples of recycled material from different sources. Following a precise protocol, a sophisticated mixture and a know-how acquired from long time, we were able to establish the most stable formulations to obtain a very homogeneous product. Our obsession to ensure the quality and consistency of our products over time makes us aim the excellence as a guarantee of security for our customers, as for the rest of our production.

Upon reception of waste, we proceed to 3 possible sorting:

- Optical sorting,
- Ballistic sorting,
- Densitometric sorting,
- Infrared sorting,

More sorting is refined, the more raw material is considered clean (free of all interfering substances: PES, PP, PVC, paper, etc.) and therefore good.

Depending on the quality we get, we will decide to make additional sorting in order to purify the final mixture.

The number of sortings, guaranteeing quality of the final product, is also for us the opportunity to offer different levels of quality and optimizing mechanical properties of the product.

Then the « clean » waste will be crushed, washed and then transformed in granules.

Following these operations, we will do a drawing of the material obtained for:

- a visual control,
- a complete analysis (physico-chemical)

Depending on the products, applications and customer requirements we have developed several recipes in which we mix:

- Materials from domestic, agricultural and industry
- Transparent or coloured raw material
- PEHD, LDPE, linear raw material

For each product of Barbier range, we have made a selection of different mixtures which according to customer's applications and expectations will bring an answer:

- Quality 1 = low-range,
- Quality 2 = mid-range,
- Quality 3 = high-range.

Then, we will flow the raw material that we can incorporate into the final product. To start we are limited to 15% for each product. This is a minimum, it is a starting point that we can evolve based on different experience feedback we get.

3) LATER

Finding the right partners who see this new concept a real differentiation!

Our arguments:

- we enter the area of the circular economy,
- positive communication,
- environment policy,
- can be economical if well controlled.