

# SOCOJARS®

A NEW GENERATION OF PET JARS FOR  
THE FOOD MARKET



## INTRODUCTION

WHY HASN'T THE FOOD MARKET EXPERIENCED THE CHANGE THAT HAS ALREADY OCCURED IN THE BEVERAGES MARKET: THE SUBSTITUTION OF THE GLASS JARS WITH THE PET JARS?

*Until today, these were the main problems blocking this evolution:*

1. Insufficient oxygen barrier in order to guarantee a shelf life of the product similar to what is available with glass
2. Insufficient resistance to the Hot Filling process



OXYGEN BARRIER



RAW MATERIAL



Monolayers,  
blends

HEAT RESISTANCE



PRODUCTION  
PROCESS



Single Stage  
Two Stage



Finished  
product



To  
customer

By the customer



Blowing  
station

Filling  
line



To market



## THE INNOVATION

Nuova Socoplas, with its new SOCOJARS® production line has solved both problems with a solution that involves raw materials, a new production process and a perfect packaging design.

Let's have a look at the numbers:

- Oxigen barrier of about 0,1 PPM/Year
- Hot filling resistance: 82° +/- 2° depending on the technology chosen (we can provide the precise technology to suit the customers needs) and the filling line conditions. We can study also to rise this temperature resistance under certain conditions.
- High vaccum resistance
- Great clearance/transparency
- Low ecological impact and great recyclable packaging (we can achieve the oxygen barrier with only one layer)
- The cost is very competitive



## Packaging in Monolayer PET BARRIER

NUOVA SOCOPLAS presents

# SOCOJARS®

The only monolayer resin with Active&Passive Barrier inside, suitable for sauces, dressing, jam e food.

The Socojars resin is FDA approved and recyclated in the normal PET waste stream





## SOCOJARS® and recycled stream

The SPI (*Society of Plastic Industries* or *the Plastic Industry Trade Association*) resin code was created in 1988 to assist recyclers identify and sort the resin from which individual plastic containers are made. Since its creation, the resin code system has taken on a meaning beyond its initial intent. Because of the proliferation of resin types and modifications, e.g. PET multilayer containers and polyolefin copolymers, the ASTM (*American Section of the International Association for Testing Materials*) has created a subcommittee to revise and update the resin code system, and to issue an ASTM standard that accommodates the various packaging resins currently on the market. The ultimate outcome is likely to be additional resin sub-codes. For example, one proposal for PET multilayer containers is #1, PET+ or PETE+. Although the committee is making progress a final standard is likely to be years in the making.

It is our opinion that, under the current SPI system, it is appropriate to assign a #1 PET or PETE code to containers fabricated from SocoJars®.

The "recyclability" of a given container type is dependent on many factors, the most important of which are the technology of the recycle process and the requirements and the specifications of the end-uses of the recycled material. Evaluation of the impact of SocoJars® resin containers in the PET clear container stream was carried out. This study has demonstrated that is had no significant impact on the technical or cosmetics properties of clear bottles. The highest volume use of recycled PET containers is in fiber. Studies of the impact of SocoJars® on fiber properties have shown no significant impact on fiber properties at significantly higher levels.



# CONSIDERATIONS

After all the considerations highlighted above, we have concentrated our development on the single-stage PET mono-layer oxygen barrier bottle/jars. In fact, comparing all the reasons underlined in the previous pages, this is the best compromise in terms of cost, performance, commercial appeal, and innovation amongst all the current possible packaging types/styles.

We have therefore developed a complete know how on this kind of packaging solution with special attention on:

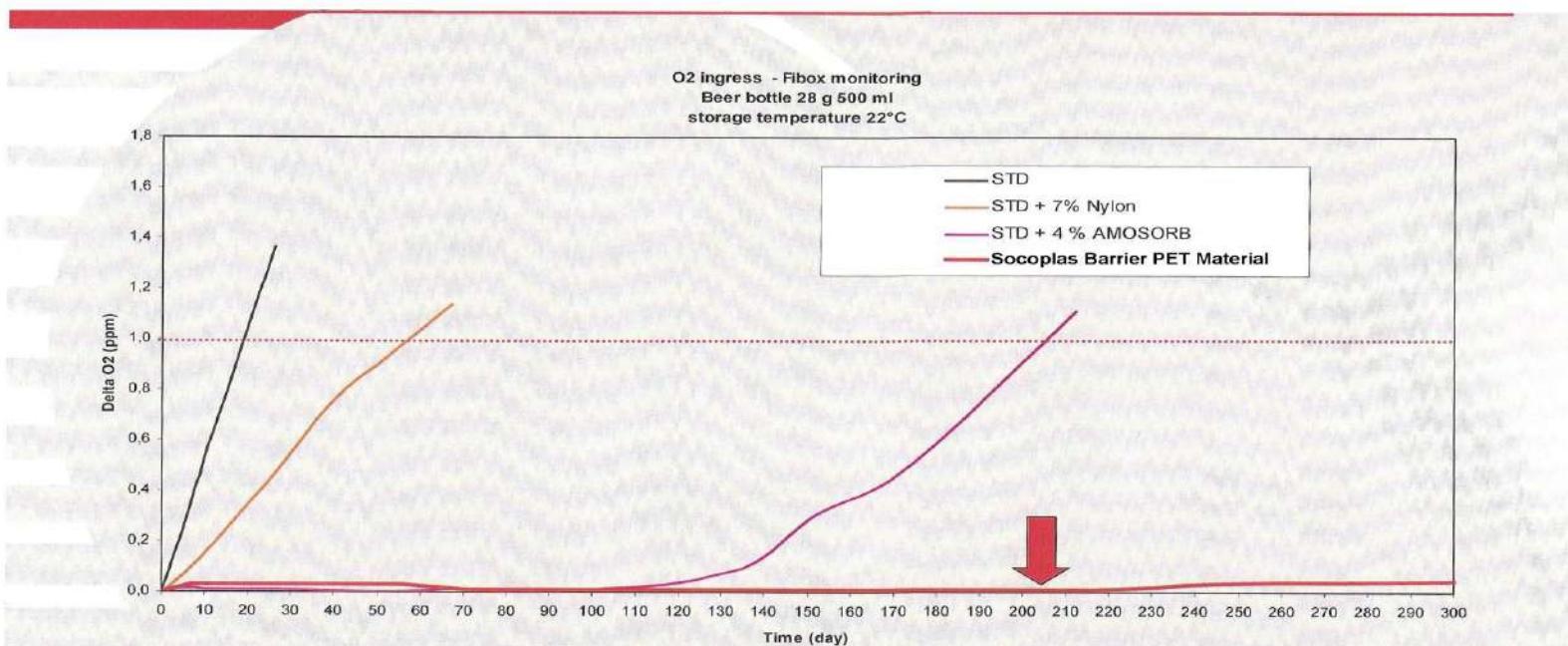
1. Oxygen barrier and shelf life performance
2. Interaction on the product-packaging
3. Integration with the existing filling line by the customer with the aim of minimizing the necessary adaptive modifications going from the glass jar to the SOCO-JAR (also thinking about those lines when we design the jar/bottle)
4. Hot filling and its implications during and after the filling process
5. Exploiting all the possible alternatives between the old and the new packaging in order to realize additional cost savings and functional implementations.



## LET'S SEE EACH POINT IN DETAIL:

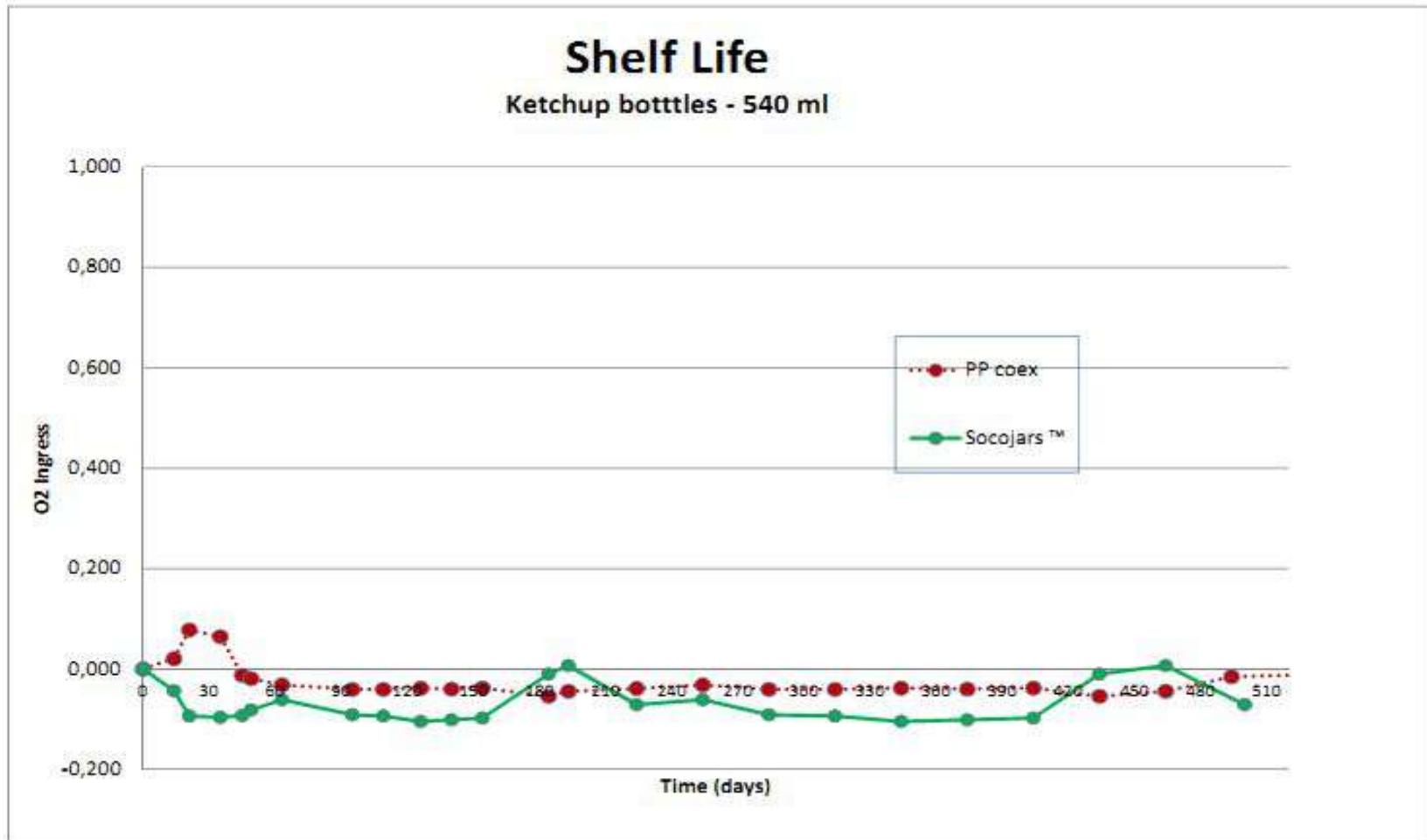
### 1. Barrier property

*Performance of the Socoplas barrier PET compared with the other barrier PET on*



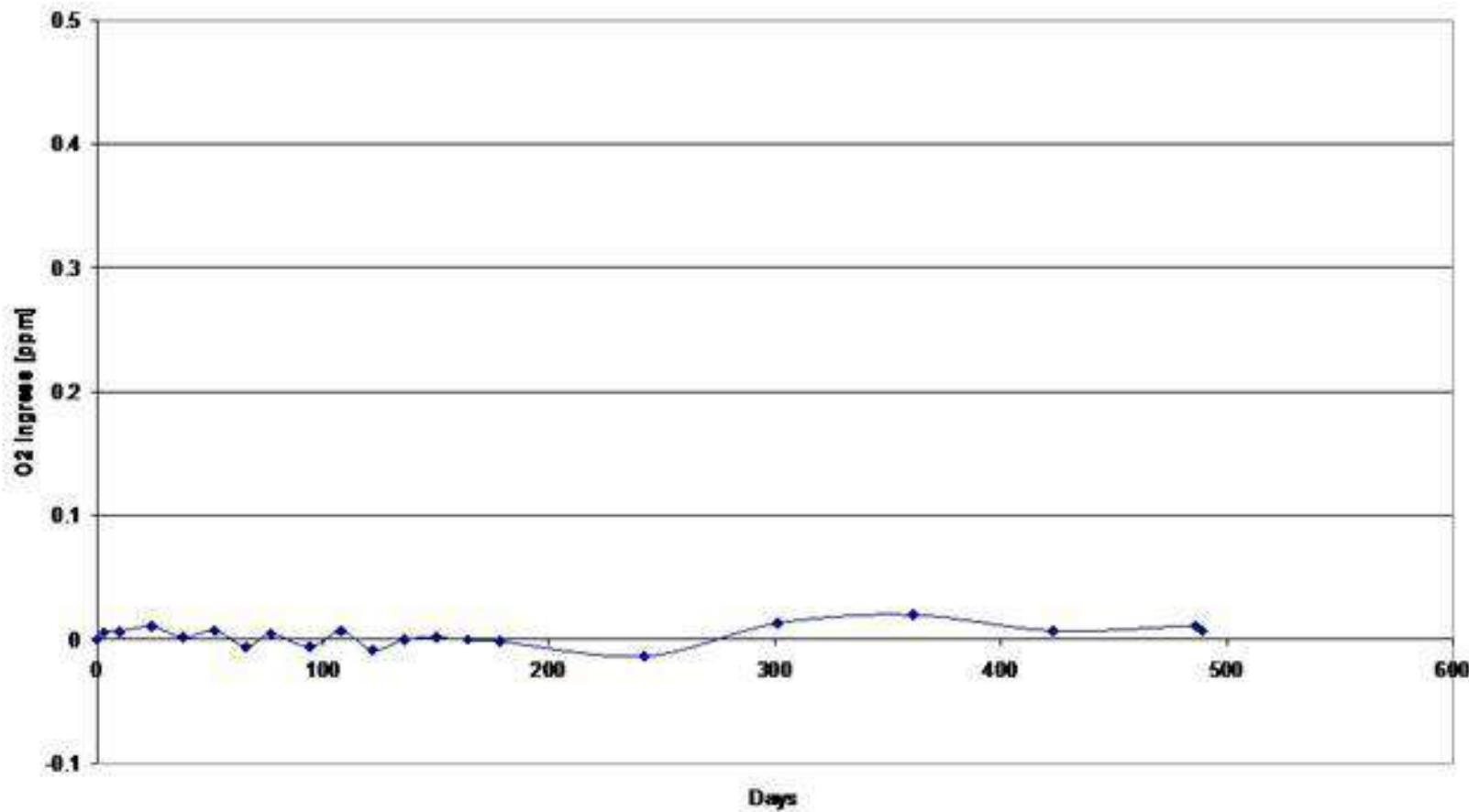
The horizontal red line indicates the rate of 1 ppm of O<sub>2</sub> ingress that is typically accepted on the market.

*Performance of the Socojars® PET compared with PP coex on the current market*





## *Performance of the Socojars® PET at 489 days*





*With an oxygen permeability of 0,1 PPM/Year out PET is today the transparent plastic material, mono-layer, that offers the best shelf life in the world of packaging and its cost is very attractive !!*

## **2. Interaction product-Packaging**

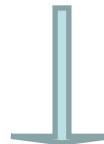
*Our project is not just limited to this.*

*During the creation of the new packaging, we considered, all the possible oxygen sources in order to adapt the new packaging to the REAL needs of the customer, and on the other hand to avoid useless costs. We have therefore developed specific forms in order to collect all the necessary information from the customer and create the "perfect fit" packaging.*

*Exploiting all the possibilities offered by the plastic packaging, we are able to study together with the customer, the best solution in terms of respect for the function that the package has to accomplish and in terms of obtaining the best logistical cost savings.*



### 3. Integration with the actual filling line



*After verifying our ideas with the first projects, we can affirm without any doubt, that the substitution of the glass packaging with our PET packaging need very few adjustments on the existing filling line by the customer. Of course this also depends on the type of product. In detail:*



1. Cold filling line: in this case the line doesn't need any change. The only point that needs to be verified is the closing belt of the capping machine in case of twist off cap.
2. Hot filling line: the main modification here could be in putting two "twisters" to put the jar upside down just after the filling and to bring it again in the original position at the end of the line (this is in case that the customer chooses this system to avoid pasteurization. Of course what we specify in point 1 regarding the capping machine is also valid here).



## 4. Hot Filling

This part of the project, together with the oxygen barrier, has been the most challenging part for our R&D.

Today we have reached a good standard enough so that we can guarantee an industrial production. Nevertheless we haven't stopped our research and we are still developing and testing ways and new solutions in order to reach an even higher thermal resistance for our packaging.

This is in fact a very complex matter.

The resistance to the heat and the vacuum come as a consequence of the hot filling, it depends not only on the material but also on the packaging design, packaging wall thickness and the production process.



## 5. Logistic Saving

Last but not least, we have the possibility to create additional savings in this field by working together with the customer already in the packaging design phase. In detail:

1. **Stackability**: starting with a new project we have the possibility to interact with the customer analysing his actual logistic and storage system in order to find the best solution in terms of "lateral combining" (for example at the level of every single pallet to maximize the number of pieces per pallet) and "vertical combining" (for example studying the necessary vertical charge in order to exploiting all the vertical space in the warehouse).
2. **Weight**: our PET barrier packaging weights less than all the other packaging! In particular compared with the glass packaging we can consider it an average weight of the PET packaging of 1/6 of the glass packaging weight! This is particularly important for the transportation of the filled packaging because with the glass jars/bottles often the weight limit of the truck is reached before the volume limit. This means that with a single truck I can transport much more product with a positive impact on the transportation cost (in the same case we verified savings between 20 and 30%).
3. **Unbreakable**: the typical characteristics of the plastic packaging was one of the first reason for the change in the past from the glass packaging to the plastic packaging. It's easy to consider all the savings of having no-broken packages in the warehouse throughout the year.
4. **Portability**: in case of "in-house" production, because instead of transporting a heavy already formed glass bottle/jar and also having problem in occupying wide storage space, the customer can produce the bottle/jar just when he need it.



For the above explained reasons, our company and our Team is now ready to offer all the advantages and cost savings that pushed the beverage market to move from glass to PET in the past to the food market.

This project started in 2006 with the aim of solving those technical problems that were blocking the entry to the food market.

Today we can proudly say that we did it.

Our Team is able to create a PET packaging mono-layer that can substitute the glass in the food market.

We interact with the customers in order to create the best possible packaging solution for THEIR NEEDS. We don't treat this matter as a standard packaging, but we "model" the creation of the packaging on the REAL NEEDS of the customer in all the phases: from the packaging drawing until the possible modification of the filling line of the customer or the In-House production.



We think that this packaging innovation is not only offers new savings, but also increases the always important Marketing opportunities. You will be able to propose to the market a packaging solution that is responding on all the most actualneeds of the customers, specially in term of SAFETY (unbreakable packaging, absence of splinters in the food...etc..etc) and in term of ECO-SUSTAINABILITY (inferior LCA, less Carbon Footprint, complete and easy recyclability of the entire packaging..etc...etc).

Like with all innovations, we also believe that the first Food Companies that will uses this new packaging will obtain an important competitive advantage!



# PROJECT TIMING

PRELIMINARY VERIFICATION:      *Collect all the information from the customer*

CREATION OF THE PILOT MOLD:      *45 days*

CREATION OF THE DEFINITIVE MOLD:      *90 days from approval of the Pilot  
Mold samples*

PRODUCTION:      *One week from arrival of the definitive mold*



Examples of  
successful projects in  
moving packaging from  
other material to our  
**SocoJars™ PET**



In the following pages just some examples of successful project realized in the last 3 years from Socoplas here in Europe using the new SocoJars™ product combining the new barrier technology with our process able to give the necessary heat resistance to our packaging to fit in the main existing hot filling process of the food market industry.



# Ketchup Casalasco / Kraft

On the left you can see the old bottle (still on sales for some low price reference of Casalasco (italian co-packer for Kraft) on the right the new bottle realized with our SocoJars material in 2010-2011 and actually on the shelf in Germany.



1. Ketchup bottle in PP coextruded



2. Ketchup bottle in PET SocoJars™



# Formec Biffi Mayonese and Pesto sauce

Substitution of the glass 1062 ml jar with our SocoJars™ jar 82 mm neck, cold filling. This has been the first project done with our new SocoJars™ product in 2008-2009 and still successfully on the shelf. Since in this project we didn't had to face the hot filling we decrease the jar weight down to 50 gr. You can see the original glass jar on the left and our SocoJars™ jar on the right.

As we can see the Formec Biffi Group decided to highlight the fact that they had moved to plastic instead of trying to make the plastic jar look like the glass. This because the marketing wanted to underline the fact that the new container in our PET is much more recyclable then the old one in glass, so they also change the cap.



1. Glass jar



2. Mayonese SocoJars™ PET



3. Pesto SocoJars™ PET



# Formec Biffi – Pasta sauce

Last project done with the Formec group. We did the same thing done for the mayonese and pesto but here we had to face the hot filling process. So we kept the same 82mm neck

and we just increased the weight up to 67 gr and modify a littlebit the jar shape to have higher resistance to the vacuum coming from hot filling. The customer is willing to create a complete plastic line for jars and this is the reason why we kept many common points also with the previous project (the sleever, the plastic cap...etc..etc). This sausec are on the shelf since 2010 and they are filled up to 80' C



1. Glass jar 1kg. for hot filling



2. SocoJars™ jar 1kg for hot filling



# Lazzaris – Fruit mustard

This project has been successfully lunched in May 2011 and in only few months the customer had double the old sales in glass since changing to plastic allowed him to sell also in some GD shops where before with glass he was not able to enter. For this project the customer wanted to match the glass consistency to make less traumatic the passage from glass to plastic. At the same time he wanted to keep the actual metal cap. As you can see the result is that you can barely tell the difference between the two packaging but with a result in weight saving of about 4 times.



1. Glass jar



2. Jar realized in SocoJars™ PET



# Latteria Chiuro – Yogurt Valtellina

This project has been strongly asked by the CEO of the company Latteria Chiuro, with the intention of creating a complete new product to launch in the difficult market of the yogurt. As you can see they not only decided for a new idea of not mixing fruit and yogurt but instead keeping those separated, but also they decided for a re-closable container in order to achieve am image of high level product. This new brand has been launced in August and after only 2 mounths and half they were asked to put their product in two major Gross Distibution company. We are actually dealing with another big company in order to create another yogurt very similar to this one.





# Latteria Colavev and Livigno – Fresch Milk bottle

In this case we enter in an existing market: the fresh milk bottle. This decision was taken to offer a lighter milk bottle to the north-Italy milk producers. This was also a completion of range together with the yogurt jar.





# Ketchup Casalasco / Kraft (Mondelez)

- Encouraged by the success of the first project of ketchup 550 ml, the group Kraft (now Mondelez) has given us a much bigger project: converting even their flagship product "Mato Mato" from the old and expensive packaging PP coextruded to our PET SocoJars®. The project was very difficult even because we didn't have the possibility to create panel on the bottle to increase the resistance to vacuum. The result, however, was very good and we have been able also to reduce about 2 gr. of weight in comparison with the old PP bottle. (in the picture on the left the bottle before filling and labeling, and on the right side the bottle after filling and labeling).

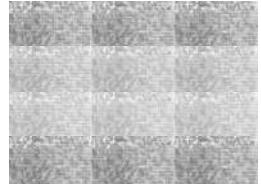




# Next upcoming projects



New octagonal 550 ml Jam jar in  
SocoJars® material



## **PROJECT LEADER**

*Dott. Marco Petrini*

Nuova Socoplas S.r.l.  
Strada Savonesa, 8  
15057 Tortona – AL  
Tel. +39 0131879555 r.a.  
Fax. +39 0131879565  
Mail: [marco@socoplas.it](mailto:marco@socoplas.it)