

# Papirol

## FOUNDATION

- more than 30 years ago

## EMPLOYEES

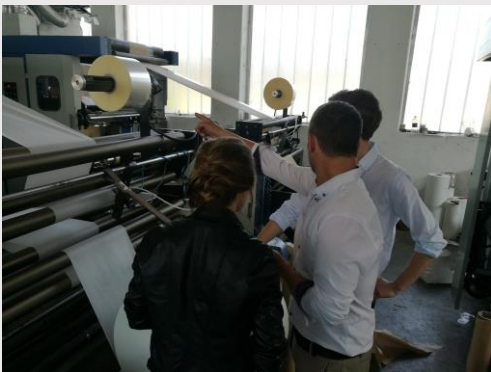
- small size company

## KEY PRODUCTS/ SERVICES

- producing paper products with a tradition of 30 years
- paper bags
- wrapping paper
- baking paper
- packaging end use product (food, nonfood, primary, secondary)
- single use products

## KEY MATERIALS

- virgin paper, mix
- recycled/virgin paper
- type of coated paper.



## PROFILE

The participating company is a small Slovenian packaging firm with an export share of 40-60%. This high rate is not extraordinary because Slovenia is a small country with a highly diversified economy and due to the small domestic market even medium companies export a significant part of their production. The company's ownership is domestic private.

The continuous growth of the company is supported by its financial figures. Revenue growth, total assets and number of employees have been increasing in the last three years considerably. Innovation is important for the company however the ratio of innovation investment in their budget was only between 0% and 10% in the last 3 years. Innovation is realized predominantly internally, within the group and decisions are made by the top management. Although innovation is strongly supported by the management, staff attitude towards change for innovation is much lower and finding new skilled people is very difficult. At present the company's resource of innovation knowledge are their customers, suppliers, web, conferences and research projects. The company's willingness to innovate is influenced moderately by the possibility of having public funding for research.

## SUSTAINABILITY, USING OF BIOMATERIALS

The company does not have any written sustainability goals, reports or certificates. At present their activities on sustainability are "forced" by external factors. The importance of bio-based content is high in their packaging technology, however for their customers price is more important than sustainability.

Paper and combined paper/bioplastic materials are very important in their environmental sustainability strategy however they are not familiar with legislation of sustainable products (recycling, composting bio-content etc.). The company has a long-term plan for using biomaterials and they have already made trial tests with biomaterials. Key limitations of biomaterials are customer awareness, price, legislation and functional properties. For them sustainability means the use of special materials. The company is focusing on promoting renewable biobased products in compliance with standards and buyer specifications.

## PRODUCTION SPECIALITIES

Biocomposite is not produced by the company, they buy it as commodity product. The end-product is printed. Main function requested is grease resistance. Product design is influenced by esthetics and functionality. Regarding product end of life, their first option is landfilling followed by thermo-valorization, reuse and finally recycling.

Current they work with flexographic printing technology with several limitations: They cannot print more than 6 colors, the width of print could be maximum 1000 cm. The thickness of paper is also critic. They use starch as adhesive and the ink is water base flexographic.

## SUMMARY AND SOLUTION

Considering the financial position and strategy of the company and taking into account the Slovenian market, the best solution would be purchasing new machinery that can convert biodegradable materials, e.g. paper with polyactic acid (PLA). Environmental awareness has been increased massively and consequently also there is a growing demand for environmentally friendly products. Following the personal meeting our experts suggested that biodegradable flat paper bag with window should be a new element in the product portfolio, which can be offered on the existing international markets (mainly Germany, Austria).

From technological aspect, the machine park is already running at full capacity (two machines). In order to produce the suggested innovative bags a new machine is needed to avoid a drop back in production.

Based on the findings of the pilot action and the solution of the expert, the new equipment has been purchased, nevertheless the test run was not successful. The problem was due to the usage of incorrect material (cellophane) for the window of the bags which caused inadequate gluing and "wavy" edges of the paper bag. To avoid this in the future we suggest using PLA for the material of the bag of the window, this will help solving gluing inefficiencies.

