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No. 147 Pollution Prevention Case Studies

Reduction in Demand and Packaging Waste Production (Cardboard) in Drug Manufacturing

Company	Laboratorios Menarini, S.A.
Industrial sector	Manufacture of pharmaceuticals, medicinal chemical and botanical products ISIC Rev. 4 no. 2100 (International Standard Industrial Classification of All Economic Activities)
Environmental considerations	In the manufacture of drugs, packaging is one of the most important stages of the process, both in terms of marketing the product and its versatility and ease of use. Any action to reduce packaging material used in the manufacturing process will have a positive effect on the consumption of materials and waste generation at the end of the product's life.
Background	Menarini is an international pharmaceutical group with over 100 years of history, present in over 100 countries in Europe, Asia, Africa and the Americas. Menarini began operating in 1961 in Spain and today has over 500 employees. Menarini Spain uses the most advanced research techniques in drug development, applies the highest quality standards throughout the manufacturing process and takes into account environmental protection. The drugs marketed are mainly to treat pain and cardiovascular, respiratory and allergy-related diseases. Menarini's headquarters in Spain is located in Badalona and houses the production facility. Currently, Menarini Spain is a business unit consisting of five companies: - Laboratorios Menarini, S.A. - Guidotti Farma, S.L.U - Tecefarma, S.A.U. - Retrain, S.A.U. - Laboratories Fermon, S.L.U.
Summary of actions	The project carried out consisted in redesigning the packaging of some of the drugs produced through the following actions: - Elimination of empty spaces in the container. - Adjustment of the size of the container to its content. - Reduction in the overall size of the cardboard box. - Reduction of the case's cardboard grammage.

Photos

Balances

The aforementioned actions have resulted in a reduction of annual cardboard consumption of approximately 2,000 kg. More specifically, the project's results are the following:

Package 1: Alerlisin 10 mg, 20 tablets

Item	Old process	New process	Reduction
External packaging weight	6.00 g	4.16 g	**-30.66%**
External cardboard packaging grammage	275 g/m^2	225 g/m^2	**-18.18%**
External packaging volume	129 cm^3	81 cm^3	**-37.21%**

Package 2: Enantyum 25 mg, 20 envelopes. Granules for oral solution

Item	Old process	New process	Reduction
External packaging weight	17.50 g	15.00 g	-14.28%
External packaging volume	415 cm^3	387 cm^3	-6.75%

These actions will also have an effect on waste production by end-of-life packaging, which will be recycled by the end user.

INVESTMENT

No investment was required since the machine was adapted from the existing filling format. Nevertheless, the redesign measures cost around 100 euros in management expenditures.

SAVINGS

The average cost savings of the 25-mg Enantyum case is approximately 0.0014 euros per unit (also influenced by the amount purchased and oscillations in cardboard price).

Taking into account an order of 3,000,000 cases per year, the savings achieved on a yearly basis reach around **4,200 euros**.

RETURN ON INVESTMENT

The return on investment is immediate.

Conclusions

An investment initially oriented towards health safety has become an important source of economic savings for the company, achieving a reduction in raw material consumption due to the reuse of previously discarded chemicals and allowing the company to reduce the pollutant load of the wastewater.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

Regional Activity Centre for Cleaner Production
Dr. Roux, 80
08017 Barcelona (Spain)
Tel. (+34) 93 553 87 90
Fax. (+34) 93 553 87 95
e-mail: cleanpro@cprac.org
http://www.cprac.org