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Med Clean Propre Limpio Terraneum

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Regional Activity Centre for Cleaner Production

MINISTERIO DE MEDIO AMBIENTE

Generalitat de Catalunya
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No. 63 Pollution prevention case studies

Automated colour dye preparation system: *Dispensing*

Company	Envases Plásticos del Ter, SA (ENPLANTER), Torroella de Montgrí (Spain).
Industrial sector	Graphic Arts and Packaging sector, Printing on plastic material for vacuum engraving.
Environmental considerations	The company Envases Plásticos del Ter, SA manufactures printed containers and packaging according to customer requirements. The company has implemented an environmental management system, with ISO-14001 certification since February 2001 and EMAS register since April 2002. The production process is divided into two phases: • Preparation of the plastic supports (laminated, blow-moulded) using various base materials, on their own or combined with sheets of other materials. • Printing of plastic film according to customer specifications. For this purpose, the vacuum engraving technique is used, applying inks of many colours, solvents and related products. The previous ink preparation process and cleaning system with solvents was completely manual. This produced a lot of empty containers, inks and dirty solvent residues, as well as handling of the products and their containers, causing accidental loss and diffuse emissions.
Background	In accordance with the above, the company generated waste containers with ink and solvent residues, used inks and solvents. In 2002, a plan was outlined to minimise waste through its environmental policy, while increasing production capacity and carrying out other modifications aimed at optimising the production process. Actions were based on the following measures: • To reduce ink and solvent consumption. • To reduce the quantity of base colours used in colour preparation. • To reduce the quantity of used ink and solvent residues. • To reduce the generation of metallic container waste.
Summary of actions	The project aims to install an automatic system for ink preparation from a reduced number of base colours, called *dispensing*, which makes it possible to supply raw materials in larger returnable containers. Using a combination of a small number of base colours, this system permits the preparation of any colour required for printing on the plastic container. And, the base colours and solvents used are supplied in larger containers making it possible to reduce the generation of residual containers and to reduce the residual product left in the containers.

Photography of the installation

Balances

	Old process	New process
Balance of materials		
Ink + solvent consumption (t/y)	815.4	794.9
Used solvents (t/y)	163.6	152.1
Metallic container waste (t/y)	39.3	26.2
Economic balance		
Cost of ink + solvent purchase (€/y)	2,950,518	2,876,805
Management cost of metallic container waste (€/y)	14,423	9,621
Management cost of used solvents (€/y)	56,045	52,099
Savings and expenses		
Savings in ink + solvent purchase (€/y)		73,713
Savings in management of metallic container waste (€/y)		3,946
Savings in management of used solvents (€/y)		4,802
Total savings (€/y)		82,461
Investment in installations (€/y)		285,572
Investment payback		3.5 years

Conclusions

The implementation of the project has led to a reduction of 20.46 t/y in the consumption of base inks and solvents, a minimisation of 11.5 t/y for used solvents and a reduction of 13.1 t/y for metallic container waste, which was processed as waste.

These reductions represent a 2.5% saving in ink costs, 7.04% saving in the cost of used solvent residues and 33.3 saving in the treatment of special waste from dirty metallic containers.

This at-source pollution prevention action is the result of the company's environmental policy, and is included in the continual improvement programme that was started 1997. The company has currently implemented an environmental management system with ISO-14001 certification and EMAS register, aimed at achieving the environmental improvement objectives set forth in its annual programme.

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

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