SPAIN

Med Clean Propre Limpio Terraneum

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Regional Activity Centre for Cleaner Production

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No. 74 Pollution prevention case studies

Minimisation of the waste generated in the recycling of glass

Company	SANTOS JORGE, SL. Mollet del Vallès (Spain).
Industrial sector	Waste management. Recovery of glass.
Environmental considerations	The company SANTOS JORGE, SL is devoted to the recovery of glass from the collection of urban waste, and from the waste generated by bottling plants for drinks and other glass waste for recycling in the manufacture of glass. The process consists of an initial selection, segregation and storage of the glass according to its colour. Then, always in accordance with the colour being worked with, the non-desirable elements contained in the glass are separated, such as tops, labels, plastic elements and others. Once the glass is rid of these elements, it goes on to a mill which renders the particles uniform in size and then, by means of lifting, transport and storage systems, it passes through the systems designed to separate undesired fine particles, especially ceramics, making it possible to obtain clean glass, which is suitable for reprocessing, and refuse, which is handled like the other waste at the dump. The amount of refuse is very high given the amount of material dealt with, and among the waste flows, those generated during the last stage of refinement still contains appreciable quantities of mixed glass, which can be recovered.
Background	According to the above, SANTOS JORGE, SL generated common waste with a high mixed glass content coming from the recovery of waste glass. In 2003, the company decided to minimise the generation of the waste containing glass, in addition to introducing modifications to improve the production process. Action was directed in accordance with the following premises: - Reducing the quantity of common waste containing glass ending up at the dump. - Recovering and recycling the segregated glass. - Applying a new technique for the identification and recovery of glass.
Summary of actions	This action had two stages: the first stage consisted of implementing a system for the collection and transport of the common waste containing glass, all of which previously went to common waste tips, to a storage area to feed the artificial vision identification and separation equipment. This artificial vision equipment identifies and locates the presence of undesired objects, especially ceramic objects, as they travel along the conveyor belt mixed up with the glass. This vision equipment orders the system, which, by means of pressurised air, separates the refuse from the glass. This action succeeds in recovering 2,200 tonnes of glass per year and recover them, which represents a minimisation of over 75% of the refuse which was previously sent to the dump.

Photo

Machine to separate the glass contained within the glass recycling refuse

Balances

	Old process	New process
Balance of materials		
Tonnes of common waste mixed with glass	5,800 t/year	3,600 t/year
Tonnes of glass recovered	0 t/year	2,200 t/year
Economic balance		
Costs of management common waste mixed with glass	214,000 €/year	166,000 €/year
Value of the recovery of glass	85,600 €/year	116,200 €/year
Savings and expenses		
Saving in waste management		48,000 €/year
Valorisation of the recovered glass		30,600 €/year
Costs associated with installation		1,954 €/year
Total savings		76,646 €/year
Investment in installations		€239,530
Payback period		3.16 years

Conclusions

With this project, it has been possible to reduce common waste containing glass which was previously sent to a controlled dump by 2,200 t/year, as well as revaluating 2,200 t/year the recovered glass, which means it can be reprocessed as a raw material, with the associated savings in the raw materials necessary to obtain it.

This action has meant that the company has achieved the targets it had set within the framework of its continuous improvement and environmental protection plans, given its commitment as a waste manager on the company's current lines and the new waste management lines the company foresees initiating.

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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