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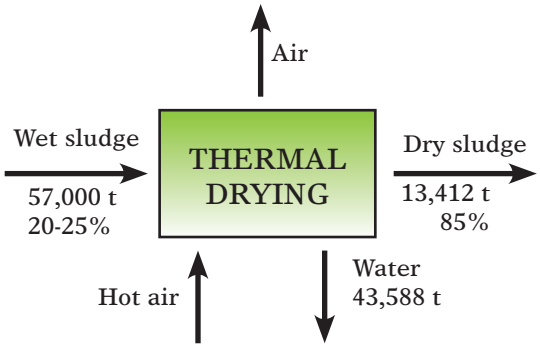
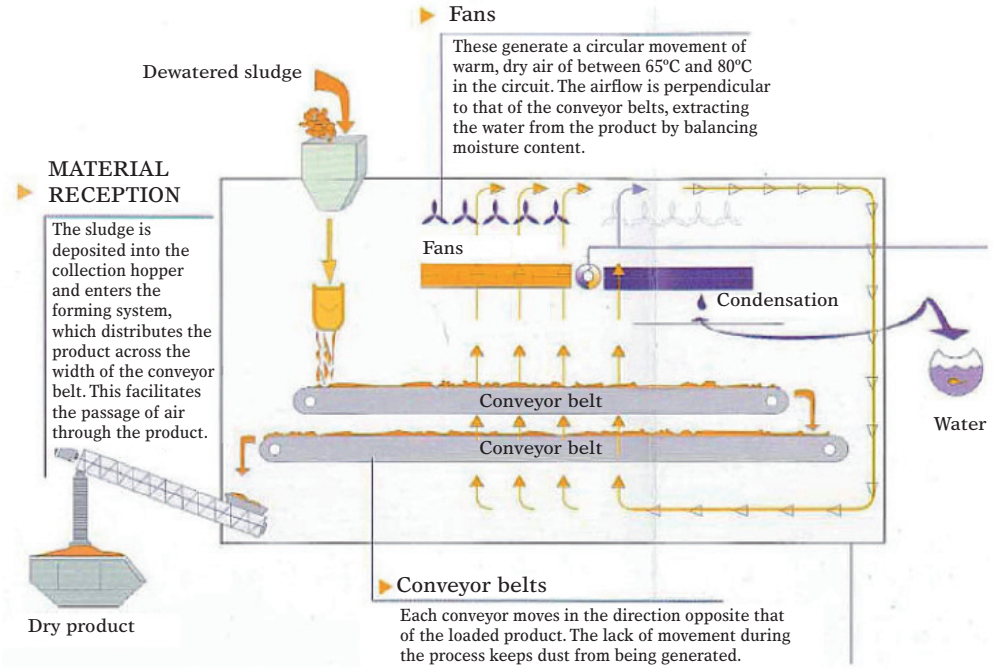
GOBIERNO DE ESPAÑA MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO
Generalitat de Catalunya Government of Catalonia Ministry of Territory and Sustainability

No. 140 Pollution Prevention Case Studies

Use of Residual Heat from the Furnace Gases for Sewage Sludge Drying

Company	Cemex Alicante (Spain)
Industrial sector	Manufacture of cement, lime and plaster ISIC Rev. 4 no. 2394 (International Standard Industrial Classification of All Economic Activities)
Environmental considerations	Cemex's policy in recent years is in line with the criteria set out in Corporate Social Responsibility report. This policy goes beyond compliance with labour laws and regulations related to the environment, since it encompasses a range of practices, strategies and business management systems that seek to find a balance between the three pillars of sustainable development: economy, society and the environment. This strategy of sustainable development is reflected in concrete actions that Cemex has undertaken in the different areas in which such activity is carried out. Some of these actions are: - Reduced consumption of non-renewable resources. - Reduction of the environmental impact of activities. - Involvement in the neighbouring community.
Background	Since the beginning of its industrial activity, the Alicante factory has always been concerned about the impact its facilities could have on the environment. For this reason, and to continuously improve environmental performance, since December 2000 the plant has implemented an environmental management system that complies with the requirements of standard UNE-EN ISO 14001:1996. In 2005 it was certified under the new standard UNE-EN-ISO 14001:2004.
Summary of actions	The project consists in using the excess heat from the clinker furnace and cooler to dry sewage sludge originating from wastewater treatment facilities. Since this energy is provided at no cost, there are economic benefits (cost savings) along with the environmental benefits, as waste is treated. It is an environmentally friendly and effective procedure that yields the following benefits: 1. Reduction in the consumption of fossil fuels through harnessing the residual heat from the furnace and the cooler, avoiding the use of other sludge-drying means that have a greater potential for environmental impact (electricity, fuel, etc.). 2. Removal of sewage sludge, reducing transport distance in comparison to the previous agricultural use (approximately 5 km of transport needed instead of 70 km).
Diagram	

Diagram



Balances

	OLD PROCESS	NEW PROCESS
Description	Transport of sludge to the agricultural fields (70 km)	Transport to the cement production facility (5 km)
Cost	Transport cost for 70 km	Transport cost for 5 km Facility cost: **€12.5 million**
Total savings		Fuel savings from sludge drying: **€3 million/year** Transport savings (unknown) CO_2 emissions from fuel consumption: **64,000 t/year**
Return on investment		Not possible to calculate due to the lack of certain data and the indirect environmental benefits.

Conclusions

The sewage sludge drying plant at the Cemex España S.A. clinker production facility in Alicante allows 57,000 t/year of waste to be treated using the hot gases exuded by the furnace, which otherwise would be wasted energy.

This project is a good example of the cement industry's great potential for solving the waste management problems of governments. In addition, the reduction of CO_2 emissions is estimated to be 130,000 t/year, taking into consideration the energy consumed in sludge drying (if not used for this process), fuel consumption reduction and the lack of a need for landfill disposal.

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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