

# Med *Clean* *Propre* *Limpio*

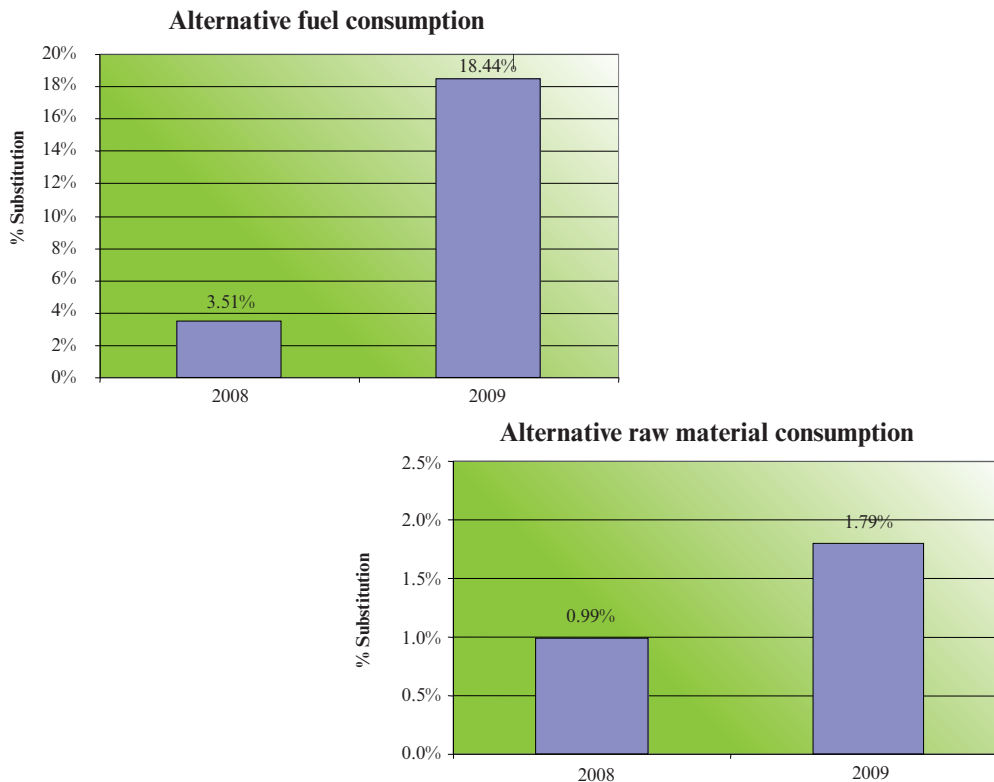

**No. 132**

## Pollution Prevention Case Studies

### Alternative Fuels and Raw Materials

<b>Company</b>	Cemex (Alcanar, Spain)
<b>Industrial sector</b>	Manufacture of cement, lime and plaster ISIC Rev. 4 no. 2394 (International Standard Industrial Classification of All Economic Activities)
<b>Environmental considerations</b>	The cement manufacturing process requires the consumption of large amounts of materials and fuel, largely non-renewable natural resources.
<b>Background</b>	In recent years, Cemex's policy has been in line with sustainable development. For this reason, Cemex has proposed carrying out actions aimed at reducing the consumption of natural resources. In the particular case of non-renewable resource reduction and its environmental impact, Cemex is trying to partially replace non-renewable fossil fuels with alternative fuels. As an example, the Cemex plants in Europe have reached energy substitution rates for alternative fuels to values of up to 80%.
<b>Summary of actions</b>	<p>With regard to the use of alternative fuels (a list of the most important ones is presented in the table of the following page), the company has built two new facilities for unloading, transporting and dispensing alternative fuels in furnaces 1, 2 and 3.</p> <p>This project consists of installing hoppers, conveyor belts, bag filters, material sieves, a storage silo with two scales, metering devices and a pneumatic transport system (lock and blowing) into the burner of the furnaces. This entire system is equipped with a particulate-collection and -abatement system to prevent the emission of particles into the atmosphere as a result of material transfer.</p> <p>Cemex has also carried out projects to use alternative raw materials in and adapt them to the clinker and cement manufacturing process. For example :</p> <p>A new slag granulation facility has been installed. Blast furnace slag is used as an alternative raw material as an additive in cement manufacture. The low grindability and moisture content of slag requires a dedicated facility to grind it separately before adding it to the cement. In addition, this action reduces particulate and CO<sub>2</sub> emissions from furnaces.</p> <p>A storage silo for granulated slag was transformed into a silo for coal fly ash storage. The main function of this facility is to provide an alternative mineral corrector for the feed manufacturing process for furnace 3.</p>

**Diagram**



**Balance**

FUEL CONSUMPTION (t)										
	Traditional fuels			Alternative fuels						
	Coke	Fuel	Coal	Low coal	Rice husk	Pumice	Olive tree leaf	Vegetable pruning	Saw-dust	CDR(1)
2006	189,088	409	0	3,007	7,614	1,230	197	3,379	0	0
2007	124,784	491	86,588	5,610	5,356	1,694	62	1,022	0	0
2008	95,596	455	48,303	2,374	3,969	1,640	579	4,985	0	0
2009	114,164	407	0	0	5,860	0	0	30,180	12,933	9,367
Investment in new facilities				€2,132,000						

ALTERNATIVE RAW MATERIAL CONSUMPTION (t)						
	Mud(2)	Sand	Rubble	Slag	Industrial mud	Ceramic
2008	1,310	604	6,118	3,557	8,940	0
2009	2,623	627	706	5,009	23,558	5,296
Investment in new facilities			€2,710,000			

(1) Fuels from waste      (2) Mud from sewage treatment plant

**Conclusions**

The implementation of this action has accomplished the following results:

- Reduction of greenhouse gas emissions
- Conservation of fossil fuels
- Reduction in material deposited in landfills

**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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