

MedClean Propre Limpio

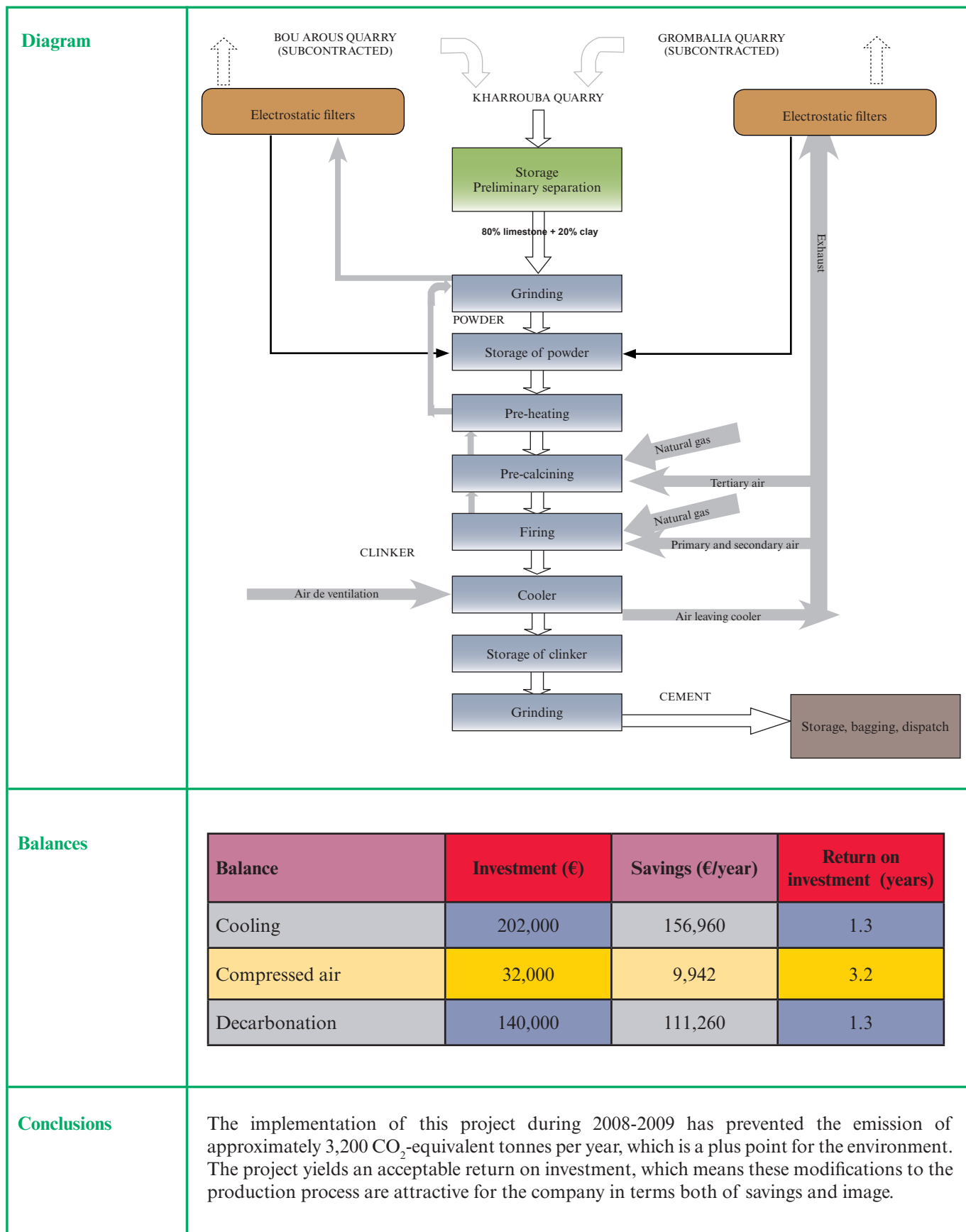


No. 138

Pollution Prevention Case Studies

Energy Efficiency Improvements in the Cement Industry

Company	Ciments Artificiels Tunisiens (CAT)
Industrial sector	Production of cement, lime and plaster. ISIC Rev 4 no. 2394 (International Standard Industrial Classification of All Economic Activities)
Environmental considerations	<p>Following an audit of the cement production process, three points for improvement in the energy efficiency of the process have been identified. These concern the cooling tower, the production of compressed air, and the decarbonation of material entering the kiln.</p> <p>The cooling tower is very inefficient due to the poor configuration and defective water-tightness of the cooling air/clinker interface in the packing.</p> <p>As regards the production of compressed air, the air circuit is mechanically regulated and rather unreliable (6 stoppages occurred in the firing shop in 2007).</p> <p>Decarbonation is essential for correct firing. This is performed by 5 cyclonic separators and a precalcinator. The audit recorded a decarbonation rate of 88% in cyclonic separator 5, which is too low (minimum expected rate is 93%).</p> <p>Improvements on these three points would reduce energy consumption in these three phases of the process.</p>
Background	Ciments Artificiels Tunisiens (CAT) is a company specializing in the production and sale of hydraulic binders since 1932.
Summary of actions	<p>The actions address the three points detected by the auditor, and involve:</p> <ul style="list-style-type: none"> - Optimization of the arrangement, water-tightness and flow configuration of the cooling tower packing, with the installation of a temperature control system in the cooling tower and improved cooling efficiency. - Increasing the section of cyclonic separator 5 (at the kiln entry), and addition of a tap to the precalcinator to extend the raw meal sojourn time and improve decarbonation. - Introduction of speed regulators for the air compressors and buffer storage tanks, to ensure continuous operation of the production shops.



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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