The Power of Nature

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It has been decided to work on increasing the efficiency of cement because cement has many applications and its efficiency is crucial. Moreover, decreased efficiency of cement can undermine constructions and threaten lives. viewing the cement problem from the perspective of the customer, producer and the environment itself; the project worked to make a compromise which can meet the needs of all parts. We worked on decreasing the total cost with a significant increase in efficiency by using waste products of steel (steel slags) and marble (waste marble powder) industries as additives to the clinker with adjusting the percentages of the additives according to previous researches and our already-made experiments. Regarding the environment, the project provides a method to capture CO2, because it is known production of cement accounts for about 4% of global total CO2 emissions, and turning it to a useful product which soda lime. Another part of the solution is concerned with workers' safety by installing a sensing system to monitor the temperature, humidity and the concentration of harmful gases in different parts of the factory and run an alarm if there is a problem in a certain place of the factory so it can be controlled easily. This solution covers the most important parts in cement industry and has many merits like: low cost – reliability – high efficiency and materials availability in Egypt in addition to safety considerations. We made tests by comparing samples and the results met our proposed requirements.

Awards Won: