

Blended Cements/SCM's

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Abstract - The utilization of supplementary cementitious materials (SCM's) and blended cements in cement production has increased in recent years due to several benefits. This is primarily driven by economic and environmental advantages, while not compromising on the product quality. With the slow adoption of these cement products throughout most of the industry, the production of this material will become more and more normalized. This paper and presentation will focus on what the plant's perspective through partial replacement of clinker with lower-cost materials such as preground limestone, calcined clay, and other materials that would otherwise not be utilized as part of a "typical" cement product.

The discussion will give some background on the economic and environmental benefits that justify this evolution in product composition. By substituting some of the clinker with cheaper and easier to source materials, the fuel consumption and overall cost of a specific amount of cement product will effectively be reduced. This directly improves the overall emissions, improves profits, extends quarry reserves, and potentially increases the production capacity of the existing equipment.

The main content of the discussion will detail the principal methods for introducing these materials, including intergrinding with clinker or separate grinding and subsequent blending. This will analyze the operational impacts of each method, highlighting key advantages such as increased cement output with the same clinker production capacity and the flexibility to increase the different products a cement plant can produce. However, the integration of SCMs also presents typical challenges that must be managed. These can include increased complexity in quality control, potential impacts on grinding efficiency, and the need for new material handling and storage infrastructure. By outlining both the benefits and operational considerations, this paper offers a comprehensive guide for expectations of implementing these different cement products at a plant level.