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A REVIEW OF STUDY AND ANALYSIS OF STRENGTH PROPERTIES OF CALCINED KAOLIN AND SILICA FUME WITH COMPOSITION

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ABSTRACT

Cement is used in any construction and can be hydraulic or non-hydraulic, which directly depends on the cement's ability to use the presence of water. When high purity quartz is reduced to silicon at temperatures of up to 2000 ° C, SiO2 vapors are formed, which are oxidized and condensed in the low temperature zone into tiny particles made of non-crystalline silica.

1. INTRODUCTION

The term "cement" has been around since Roman times when the term opus caementicium was used to describe the memory function in the memory of modern cement made from. Waste and lime Volcanic ash and other bricks are added to the living coal to form a mixture that was later called cement mortar and cement mortar. Can the cement used in construction be called electric? It depends on the ability of the cement to be used in the presence of water.

Reactions of Principal Clinker Phases

$C_3S + H_2O \rightarrow$ C-S-H* + $Ca(OH)_2$

$C_2S + H_2O \rightarrow$ C-S-H* + $Ca(OH)_2$

$2C_3A + 18H_2O \rightarrow C_2AH_8 + C_4AH_{10}$

$2C_3A + 32H_2O + 3(Ca^{2+}_{(aq)} + SO_4^{2-}{}_{(aq)}) \rightarrow C_6AS_3H_{32}$

$C_6AS_3H_{32} + 2C_3A \rightarrow 3C_4ASH_{12}$

C_4AF has analogous reactions to C_3A, i.e. produces e.g. $C_6(A,F)S_3H_{32}$

*C-S-H is an amorphous hydrogel having variable composition in terms of Ca/Si ratio and H_2O/SiO_2 ratios

Figure 1: Chemical process of cement

2. PORTLAND CEMENT

Cement is the best-known binder. Over time, a wide variety of cement mortar has been prepared to meet all requirements. Portland cement is the most widely used cement and all its other forms come from Portland cement. The following are the types of Portland cement.

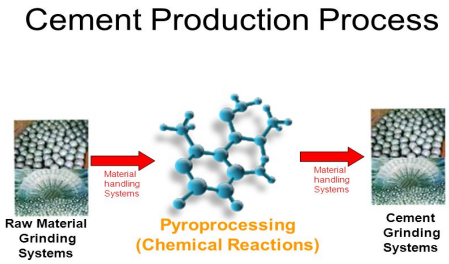

Figure 2: Cement production process

Figure 3: Portland cement

1) Ordinary Portland cement (Type I)
2) Modified portland cement
3) Quick hardening or high-strength Portland cement (Type III).
4) Quick setting cement
5) Low heat Portland cement (Type IV)
6) Sulfate-resistant Portland cement (Type V)
7) Portland cement waterproof type
8) Portland cement waterproof
9) High alumina cement
10) Portland cement, slag
11) Aerial Portland Cement (Type I-A, II-A, III-A)
12) Pozzolana, portland cement

1. Ordinary Portland cement
Used in general construction All other cement is obtained from this cement.

White cement

- Pure white OPC produced with white chalk or iron oxide free clay.
- Instead of coal, fuel is used for combustion.
- Much more expensive than OPC

Colored cement

- The right pigment is used to achieve the desired color.

- The pigment used should be chemically inert and durable under exposure, sunlight or weather conditions.

Modified portland cement

Cement in this setting develops less heat to produce than OPC.
Best suited in hot climates for construction

3. CALCINED KAOLIN

Products produced in this temperature range provide excellent properties in rubber compounds, especially when coated with silane, which improves chemical-mechanical properties and strength The silane treatment improves the stiffness, toughness and dimensional stability in polyamide molding.

4. SAND

Determined by their finer size than gravel and thicker than sediment. Sand can also refer to the ground surface level or soil type. That is, soils with particles greater than 85% of the size of the sand (by mass).

The composition of the sand varies according to the local rock source and conditions. But the most common component of sand in continental and non-tropical inland coastal environments is silica. (Silicon dioxide or SiO2), generally in the form of quartz the second most common type of sand is calcium carbonate, such as araconite, most of which have been created in the last 500 million years by various forms of life, such as corals and molluscs. For example, the primary form of sand appears in regions where coral reefs have dominated ecosystems for millions of years, such as the Caribbean.

5. COMPOSITION

In terms of the particle size used by geologists, the diameter of the sand particles ranges from 0.0625mm (or 1/16mm) to 2mm. A single particle in this size range is called a grain of sand. Grains of sand are found between gravel (with particles ranging from 2mm to 64mm) and silt (particles less than 0.0625mm and 0.004mm).

6. CONCLUSIONS

The inclusion of silica fumes reduces the working capacity of the concrete and subsequently, to increase the working capacity of the concrete, the use of super plasticizers is very necessary. Low thermal conductivity concrete is useful for thermal insulation of buildings. The thermal stress resulting from temperature gradients reduces the mechanical properties in the structure. Bridges are structures that detect temperature differences between their upper and lower surfaces.

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CONFLICT OF INTEREST

The author have declared that no competing interests exist.

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