

Silica Flour KCM020R

1. Introduction

The hydration of Portland cement to form a gelatinous calcium silicate hydrate, called C-S-H phase, is responsible for the strength and dimensional stability of set cement at ordinary temperature. At temperature above 110°C (230°F), C-S-H phase is often converted to a phase called alpha dicalcium silicate hydrate (α -C₂SH). The α -C₂SH is highly crystalline and is much denser than C-S-H phase which results in shrinkage and deterioration of integrity, strength and permeability of the set cement.

For deep and high temperature wells KCM020R is used to stabilize the cement system to prevent the loss of strength and permeability within set cement.

2. Physical Properties and Hazards

Additive	Form	S.G.	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KCM020R	Gray Powder	2.55-2.75	Insoluble	Not Combustible	Eyes, Inhalation	Dust	N/A

3. Chemical Properties and Application

The addition of KCM020R in the cement prevents the conversion of C-S-H phase to α -C₂SH, therefore stabilizing the cement system. The proper concentration of KCM020R must be optimized to obtain bulk of Lime-to- silica ratio (C/S ratio) in the cement. Insufficient or excess of KCM020R may result in a system unstable or dilution of compressive strength of cement.

4. Treatment

In most of cases, about 35% of KCM020R by the weight of cement produces optimum properties.

5. Packaging

KCM020R is supplied in plastic-lining bags with net weight of 25 kg/sack.

It should be stored in shaded areas with good ventilation. Keep it away from high temperature, humidity, and direct sunlight.