

Accelerator KCM042

1. Introduction

KCM042 is engineeringly developed for oil and gas well cementing operations. Its primary function is to accelerate the hydration process of oil well cement, significantly shorten the thickening time and waiting-on-cement (WOC) time of cement slurry, and substantially improve the early compressive strength of cement stone, thereby ensuring wellbore stability and shortening the well construction cycle.

KCM042 is an inorganic accelerator/early strength developing agent, free of chloride ions, posing no corrosion risks to downhole tools and tubulars. It features a wide applicable temperature range and exhibits good compatibility with various fluid loss additives and dispersants.

2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KCM042	White Granule	2.00-2.50	Soluble	Not Available	Eyes	Dust	N/A

3. Chemical Properties and Application

The key ingredient of KCM042 react with $\text{Ca}(\text{OH})_2$ generated during cement hydration to form reactive intermediates, which accelerate the hydration process of C_3S and C_3A . The active ions promote the formation of crystal nuclei of hydration products, lower the energy barrier for crystal precipitation, shorten the induction period, and accelerate the overall hydration reactions. Other ingredients of KCM042 react with cement hydration products to form insoluble precipitates, which can fill the pores of cement and compact the cement matrix, leading to early compressive strength.

KCM042 exhibits good compatibility with most fluid loss additives, retarders, and dispersants.

4. Treatment

Typically, 2-20%BWOC is effective for the compressive development of cement system. In low density slurry system design, concentration of 12%BWOC is generally used.

5. Packaging

KCM042 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.