

ABSTRACT

The present invention provides a cement composition for high temperature environment or the like that allows production of a concrete for high temperature environment that has decreased autogenous shrinkage strain and comparable temperature increase and strength development compared to conventional concretes.

Specifically, the cement composition for high temperature environment of the present invention contains at least: fly ash satisfying all conditions (1) to (4) below; and Portland cement:
(1) the fly ash has a Blaine specific surface area of 2500 to 6000 cm^2/g ;

(2) the fly ash has a mass reduction rate of 5% by mass or less after heating at $975 \pm 25^\circ\text{C}$ for 15 minutes;

(3) the fly ash has a SiO_2 content of 50% by mass or more; and

(4) the fly ash has a mass ratio $(\text{Na}_2\text{O} + 0.658 \times \text{K}_2\text{O}) / (\text{MgO} + \text{SO}_3 + \text{TiO}_2 + \text{P}_2\text{O}_5 + \text{MnO})$ of 0.2 to 1.0, (where the units for the chemical formulae in the above formula are % by mass),

wherein a content of the fly ash is 15 to 55% by mass with the sum of the fly ash and the Portland cement being 100% by mass.

FIG 1