

Committee Report: JCI-TC132A

Technical Committee on Effective Utilization of Concrete with High Volume Supplementary Cementitious Materials in Asian Region

委員会報告：JCI-TC132A

混和材を大量使用したコンクリートのアジア地域における有効利用に関する研究委員会

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Abstract

The Technical Committee on Effective Utilization of Concrete with High Volume Supplementary Cementitious Materials in Asian Region aims to implement concrete containing large quantity of supplementary cementitious material (SCM) in Asia and has surveyed specifications and standards for SCM, blended cement and concrete with high volume of SCM or blended cement in various countries of the world, investigated technical problems for using concrete containing large quantity of SCM in Asia and practical methods for enabling use of a large quantity of SCM, and conducted experiments by using SCM imported from some ACF member countries. The committee summarized its 2-year activities in a report, which includes construction examples in which concrete containing large quantity of SCM was used and proposals about effective ways of using SCM in Asia.

1. Introduction

The amount of concrete produced in Asia accounts for 3/4 of the total production in the world today but will surely increase further. It is demanded to reduce the CO₂ emissions accompanying cement clinker production and the consumption of limestone. Recently as a method to achieve the goal, concrete with high volume of SCM, such as ground granulated blast-furnace slag and fly ash, to substitute the majority of Portland cement has been actively investigated in countries in Asia. Export of ground granulated blast-furnace slag from Japan to other Asian countries is increasing, and the export of fly ash is also expected to increase. However, information has been scarcely collected on the actual utilization state of SCM and concrete that contains a large amount of SCM in countries outside Japan. In Japan, use of SCM has resulted in slow strength development, special attention

required to determine the time of formwork removal and curing days at low temperatures, and low resistance to carbonation; and uses and utilization methods of SCM have not been standardized.

Technical Committee on Effective Utilization of Concrete with High Volume Supplementary Cementitious Materials in Asian Region, which was established in 2013, aims to implement concrete in which a large amount of Portland cement is substituted by SCM, for which R&D has been performed in the civil engineering and construction fields in Japan and other Asian countries. Over a period of two years, the committee has surveyed the present states of using such concrete in all parts of the world and investigated effective methods for using the concrete depending on the kind and required performances of concrete structure and also by considering the.....