

Committee Report: JCI-TC121A

Technical Committee on the Use of Sea Water in Concrete

委員会報告：JCI-TC121A

コンクリート分野における海水の有効利用に関する研究委員会

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Abstract

The Committee has collected information on the use of seawater, such as for mixing and curing concrete, investigated problems and remedies via experiments and reference studies, and surveyed technologies for using seawater for manufacture and curing of concrete by interviews and literature searches. Based on the results, issues surrounding the use of seawater and its possibilities are proposed.

1. Introduction

Effective use of resources is a pressing concern. Particularly, water resources for drinking are predicted to be in serious shortage in 2050 due to increases in population and rapid urbanization throughout the world. In the field of concrete, billions of tons of freshwater is consumed annually for mixing, curing and washing concrete. Seawater, which exists in abundance on the globe, is presently not permitted to be used for these purposes. Active use of seawater in the field would help more effective use of freshwater resources. The Committee aims to: 1) collect information on use of seawater, such as for mixing and curing concrete, and investigate problems and remedies via experiments and reference studies, 2) survey technologies for using seawater in manufacture and curing of concrete by

interviews and literature searches, and 3) summarize and investigate the results, and propose various possibilities, etc., for effective use of seawater.

To achieve these goals, five working groups were formed under the Committee: Survey WG (WG1), Evaluation WG (WG2), Performance Improvement WG (WG3), Construction WG (WG4), and English Culture WG (WG5). The activities of the working groups were comprehensively summarized in general meetings. The members of the Committee are shown in Table 1, and the activities of each WG are described below.

WG1 surveyed examples of concrete structures mixed with seawater or/and unwashed sea sand (structure investigation, literature search). WG2 evaluated the physical properties of concrete mixed.....