



Faculty of
Science and
Technology
Tokushima University

Properties of Concrete using Treated Low-Class Recycled Coarse Aggregate and Blast Furnace Slag Sand

Professor Chikanori, Hashimoto



Fig.1 Blast furnace slag sand used (BFS5(left)and BFS1.2(right))



Fig.2 Recycled coarse aggregate used

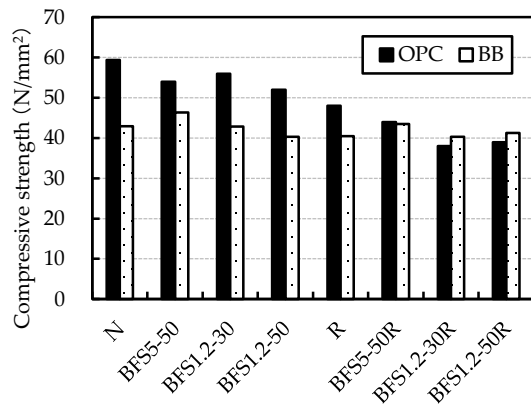


Fig.4 Compressive strength of concrete mixes with OPC and BB at 28 days

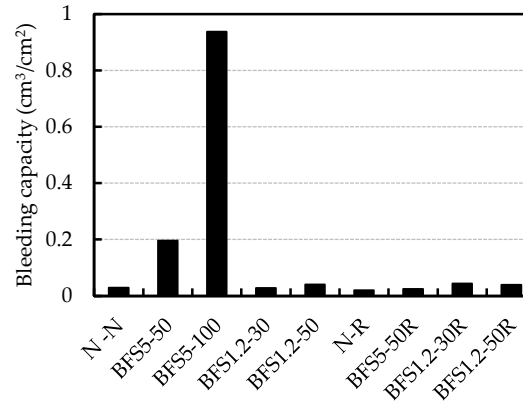


Fig.3 Final bleeding capacity

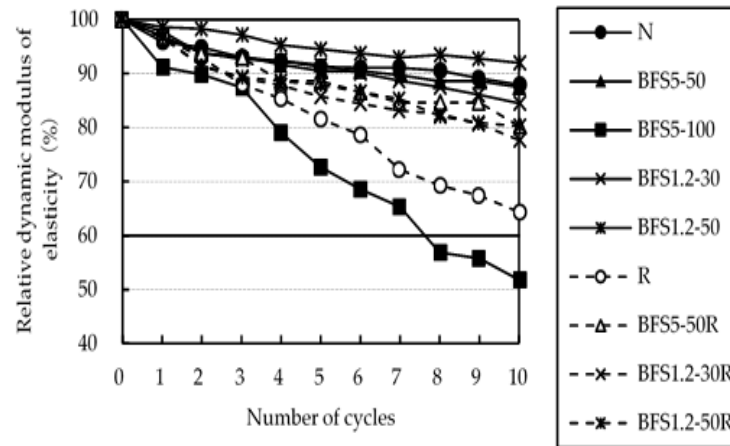


Fig.5 Relative dynamic modulus test for OPC mixes. of elasticity after rapid freezing and thawing

Content:: Since good quality natural aggregate are exhausting, it is important that industrial recycled product and by-products are used as an aggregate for concrete. In Japan, use of recycled aggregate are proposed. Although, strength and durability of recycled aggregate concrete are lower than normal aggregate concrete, recycled aggregate has not been major. In order to improve physical properties of concrete using recycled coarse aggregate, blast furnace slag sand were proposed. Recently, blast furnace slag sand is expected to improve durability, freezing and thawing damage of concreters in Japan. As properties of fresh and harden concrete bleeding, compressive strength and resistance to freezing and thawing that obtained by rapid freezing and thawing test using liquid nitrogen is high-loader than JIS A 1148 were investigated. As a result, the concrete using treated low-class recycled coarse aggregate and 50 % or 30 % replacement of crushed sand with blast furnace slag sand gave the good results, in terms of bleeding, resistance to freezing and thawing.

Keywords: Recycled coarse aggregate;
Blast furnace slag sand; Resistance for freezing and thawing; Bleeding capacity
E-mail: chika@ce.okushima-u.ac.jp
Tel. :+81-88-656-7321
Fax :+81-88-656-7351

