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A NEW APPROACH TO THE ACCELERATED METHOD FOR ASSESSING THE ALKALI REACTIVITY OF DOMESTIC AGGREGATES

NOWE PODEJŚCIE DO PRZYSPIESZONEJ METODY BADANIA REAKTYWNOŚCI ALKALICZNEJ KRUSZYW KRAJOWYCH

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Abstract

In Poland, the prevailing protocols for examining the alkali reactivity of aggregates are based on indirect methodologies such as petrographic appraisal, in addition to direct methodologies including the measurement of expansion in mortar and concrete specimens containing the aggregate under investigation. The available research methods exhibit certain deficiencies, which have been mitigated under the experimental conditions delineated in the novel accelerated approach for ascertaining the reactivity of aggregates, otherwise known as the MCPT – Miniature Concrete Prism Test. The methodology of MCPT has the potential to become an alternative for the existing procedures of quality assessment for both fine and coarse aggregates. This work presents the assessment results of the alkaline reactivity of indigenous fine quartz aggregate, examined in accordance with the protocols established by the Polish General Directorate for National Roads and Motorways along together the novel, expedited MCPT methodology.

Keywords: alkali-aggregate reaction, testing methods, mcpt method, correlation

Streszczenie

Obecnie stosowane w Polsce procedury badania reaktywności alkalicznej kruszyw oparte są na metodach pośrednich, takich jak ocena petrograficzna oraz metodach bezpośrednich, polegających na określaniu ekspansji próbek zapraw i betonów z badanym kruszywem. Dostępne metody badawcze wykazują pewne wady, które zostały ograniczone w warunkach badawczych ustalonych w nowej przyspieszonej metodzie określania reaktywności kruszyw, tzw. MCPT – Miniature Concrete Prism Test. Metoda MCPT może stać się alternatywą dla obecnego testowania jakości kruszyw drobnych i grubych. W pracy przedstawiono wyniki oceny reaktywności alkalicznej krajowego drobnego kruszywa kwarcowego, badanego zgodnie z procedurami Generalnej Dyrekcji Dróg Krajowych i Autostrad oraz nowej przyspieszonej metody MCPT.

Słowa kluczowe: korozja alkaliczna kruszyw, metody badawcze, metoda MCPT, korelacja

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