

ASSESSMENT OF THE POTENTIAL ALKALI-REACTIVITY OF VOLCANIC AGGREGATES FROM AZORES ISLANDS

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Abstract

Volcanic rocks have been found to be potentially alkali-reactive in a number of countries, including Japan, Iceland and Turkey. To characterize the potential reactivity of the volcanic rocks used as aggregates for concrete in the Azores islands, an experimental program is being carried out which includes petrographic examination, chemical analysis and lab accelerated tests.

The geochemical composition of the rocks of the Azores islands varies considerably. The rocks used as aggregates are mainly silica-undersaturated basalts and trachytes. The petrographic examination and the chemical analyses of the rocks confirmed that one of the five analysed samples contains free silica and another sample presents volcanic glass. The occurrence of microcrystalline quartz as a secondary product filling the interstices of the trachyte was confirmed by SEM/EDS.

This paper presents the preliminary results obtained on the characterization of the first five samples of volcanic rocks from Azores regarding the potential reactivity to alkalis using different methods.

Keywords: Azores islands, volcanic aggregates, petrography, geochemistry, expansion tests