



Long-term durability of andesite aggregates tested by cyclic immersion in magnesium sulphate

Balázs Czinder and Ákos Török

Budapest University of Technology and Economics, Engineering Geology and Geotechnics, Budapest, Hungary
(torokakos@mail.bme.hu)

The durability of stone aggregates control the application of these products in most fields. Various methods of salt durability testing are known, such as immersion in sodium sulphate, sodium chlorite or magnesium sulphate. The widely used test is the standardized one, the EN 1367-2:2010. In this test the aggregate samples are immersed in magnesium sulphate solution and then removed from the solution and dried. The salt durability is measured after 5 cycles in the form of mass reduction, which is expressed in mass percentage. The current research aims to analyse the salt durability of aggregates that are exposed to additional salt weathering cycles, i.e. more than 5 cycles. The number of cycles of immersion and drying was increased to 35. Besides measuring material loss the resistance against abrasion was also tested. A Miocene andesite from Nógrádkövesd (Hungary) was used for test. The resistance against abrasion was assessed by micro-Deval test following the guidelines and descriptions given by EN 1097-1:2012. The results were expressed as micro-Deval coefficients. The test results suggest that the mass reduction follows linear tendency according to the number of immersion-drying cycles, but the resistance against the abrasive impact is not clearly reflected with the increasing magnesium sulphate cycles for the studied andesite.