Durability of ultra high performance fibered concretes in two acidic environments

Farida Ait Medjber[1,2] and Mohammed Saidi[1]

[1]Unité de Recherche Matériaux, Procédés et Environnement, Département de Génie des Matériaux, Faculté des Sciences de l'Ingénieur. Université M'Hamed Bougara. Cité Frantz Fanon, 35000 Boumerdes, Algérie
[2]Université Mouloud Mammeri de Tizi Ouzou
farida.pcmc@gmail.com

Abstract. The objective of this research is to study the durability of specimens of a high-performance fiber-reinforced concrete (UHPFC) in two aggressive media concentrated at 10% (nitric acid, hydrochloric acid) for a period of one month. The study of durability has shown that specimens made from pozzolan-substituted cement have better chemical resistance in both acidic solutions (the loss of mass decreases with the increase of pozzolan substitution rate), so UHPFC prepared with 0% pozzolan have low chemical resistance to attack nitric acid with a loss of mass of 3.97%. On the other hand, in the hydrochloric acid solution the low chemical resistance is presented by the test pieces made with 10% pozzolan since they display 5.49% mass loss.

Keywords: chemical resistance, durability, mechanical characterization.