LATVIA UNIVERSITY OF AGRICULTURE
FACULTY OF RURAL ENGINEERING
DEPARTMENT OF ARCHITECTURE AND BUILDING
DEPARTMENT OF STRUCTURAL ENGINEERING
DEPARTMENT OF LAND MANAGEMENT AND GEODESY
DEPARTMENT OF ENVIRONMENTAL ENGINEERING AND WATER MANAGEMENT

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ARHITEKTŪRAS UN BŪVNIECĪBAS KATEDRA
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CREEP BEHAVIOR OF HIGH PERFORMANCE FIBER REINFORCED CONCRETE (HPFRC)

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The challenge of present investigation is to evaluate the possibility of using micro- and nano-fillers as active additive in concrete composition for replacement of cement and elaborating a new concrete. This paper examines an experimental test results carried out with aim to evaluate the long-term deformations – creep of elaborated concrete composition. Two kind of fiber-reinforced high performance concrete mixes using those silica additives and cocktail of polyvinyl alcohol (PVA) fibers have been developed and prepared. The cubes and cylindrical specimens were prepared for each composition and tested. Cylindrical specimens were put into a creep lever test stand and subjected to a uniform compressive load kept constant over a long period in constant room temperature and level of moisture. This study was carried out on two different extreme cases of environment: the case with 100% moisture of specimens obtained by protecting to desiccation of this one and the case of air-dried specimens obtained by protecting to get moisten. The total creep strains are given in Fig.1.

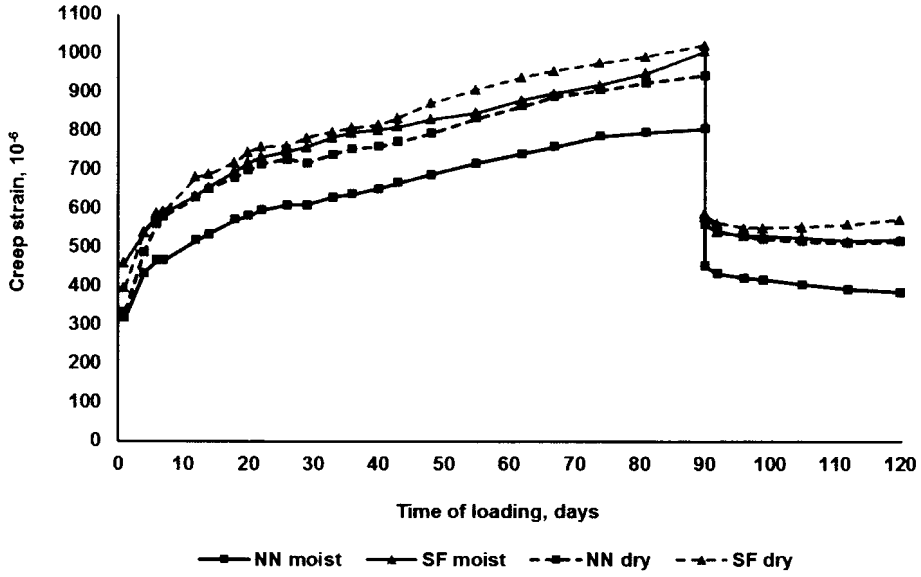

Figure 1. Creep strain of HPFRC at air-drying and moist conditions

The results of the experiments permit the prediction of long-term deformations of the concrete.