

# POP CONCRETE® VOLUME CHANGE DETERMINATION INFLUENCED BY AGING, TEMPERATURE AND MOISTURE VARIATION

*Tomáš Strnad, Pavel Svoboda*

*CTU in Prague, Faculty of Civil Engineering  
Department of Construction Technology*

## Abstract

CTU in Prague in co-operation with Department of Glass and Ceramics at Institute of Chemical Technology in Prague is carrying out the research focused on definition of geopolymeric material properties on basis of alkaline - activated fly-ash.

One of the goals of this research is POP concrete volume change determination owing to dilatation shortening during ageing of the substance further the determination of linear changes caused by temperature and moisture variation of environment.

The research is proving, that in case of chemically activated fly-ash one of the most deciding role plays the proportion of water in composition with entire specific surface of solid particle. Water used for chemical activation of fly-ash together with intenzifiers create inner moisture of the composition, which direct proportionally influences its physiomechanical properties. For this purpose we use several methods serving us partly to simulate conditions, which will be engineering construction made from chemically activated materials exposed during their assumed operating life, partly for methods helping us to define component responses on such entry conditions playing the most important effect on behavior and interaction of constructive system.

## Acknowledgements

This research is realized within the grant GAČR č. 103/05/2314 "Mechanical and engineering properties of geopolymeric materials on the basis of alkaline-activated fly-ash" and within research purpose MSM 6046137302 "Preparation and reserch of functional materials and material technologies utilizing micro and nanoscope methods".



Ing. Tomáš Strnad  
Doc. Ing. Pavel Svoboda, CSc  
The Department of Construction Technology  
Faculty of Civil Engineering, CTU in Prague  
Thákurova 7, 166 29 Prague 6 – Dejvice  
Czech Republic  
Phone: +420 224 354 658  
E-mail: [strnad.tomas@seznam.cz](mailto:strnad.tomas@seznam.cz)