**4. Conclusions and perspectives**

We proved that it is possible to develop new glass compositions using industrial waste. There were produced materials consisting of up to 35% of fly ash, and 15% of slag and their vitreous structures were confirmed using X-ray diffraction (XRD). Thermal analysis and nanoindentation techniques were applied to compare the properties of these new glasses with commercial glasses used in building engineering. The water resistance of the samples was improved with changes in the compositions, achieving high water resistance. The coloration of the samples varies depending on the composition and melting temperatures. Besides to form glass in a larger range of compositions, the samples consisting of fly ash are also less susceptible to changes in melting conditions and to the introduction of further elements. Therefore, the manufacture of glasses containing fly ash is more profitable than the ones containing slag. As next steps, the thermal properties of these glasses will be determined and the nanoindentation measurements will be concluded for all the samples. The most promising samples will be cast as glass bricks.