

Calibration of an advanced material model for a shotcrete lining

Juraj Chalmovský¹, Martin Závacký¹ and Lumír Miča¹

¹Department of Geotechnics, Faculty of Civil Engineering, Brno University of Technology, Veveri 95, 602 00 Brno, Czech Republic

E-mail: chalmovsky.j@fce.vutbr.cz

Abstract. Proper choice of a constitutive model is an essential part of any successful application of numerical methods in geotechnical engineering. In most cases, attention is paid to the soil constitutive model. For structural elements, such as tunnel linings, retaining structures etc. elastic constitutive models are often used. These material models however do not involve many aspects of a real structural behavior such as limited tensile and compressive strength, strain softening and time dependent behavior during service life of a construction. In the proposed paper, an application of the novel constitutive model for shotcrete (Schädlich, Schweiger, 2014) is presented. The paper is focused at the process of determination of input parameters values of this model based on performed laboratory test. Section of the primary collector network in Brno was chosen for the purpose of obtaining shotcrete lining samples.