



## **Thermal dilatation, density, porosity and tensile strength of porous Miocene limestone**

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Porous Miocene limestone is one of the most important stone that have been used as in the monuments from Roman times in the present territory of Hungary. Thermal behaviour of these structures plays an important role in the structural integrity of the monument. Very limited data is available on the thermal dilatation of porous limestone and to bridge this information gap limestone from Sósút quarry was analyzed. The present study focuses on the thermal dilatation and its relationship with other physical properties and fabric. Three different lithotypes were tested: i) fine-grained, ii) medium-grained and iii) coarse-grained porous limestone. Prismatic test specimens were placed in thermal dilatometers and were subjected to thermal cycles within the temperature range of 20°C – 100°C. Thermal dilation and shrinkage was recorded. Measurements on bulk density, porosity and indirect tensile strength of the three different lithologies were also made. Data set suggests that the thermal dilatation of porous limestone is in the order of 0.2-0.8 mm/m. The differences are related to different fabric and also suggest an oriented micro-fabric, since thermal expansion in the X,Y Z direction is different.