

## The Indentation Size Effect (ISE) and the Speed of the Indenter Penetration into Test Piece

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The aim of the submitted paper is to study the influence of the speed of the penetration of the indenter into the test piece ranging from  $0.302 \mu\text{m s}^{-1}$  to  $1.089 \mu\text{m s}^{-1}$  and applied load ranging from 10 g to 100 g on measured values of micro-hardness. Whereas certified reference material with defined specified hardness and its uncertainty was used as a test piece, the measurement involved indirect calibration of the tester. The influence of observed factors on measured value of the micro-hardness was evaluated by Meyer's index  $n$ , PSR method and by Analysis of Variance (ANOVA). The influence of the load on the measured value of micro-hardness is statistically significant and the relationship between applied load and micro-hardness manifests "reverse" ISE. The velocity has statistically significant effect on the micro-hardness. Meyer's index on average decreases with increasing of the speed.

**Keywords:** Micro-hardness, ISE, Speed of the indenter in the test piece, Load

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