

# Slipping Time and Velocity of Footwear Samples in Friction Measurements

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## Abstract

A friction measurement experiment was conducted using the Brungraber Mark II slipmeter. The coefficient of friction (COF), the time and velocity of slipping of the footwear sample on the floor were measured under four floors and two surface conditions. Two operators performed the measurements separately. The results showed that there were no significant differences between the two operators in measuring all the dependent variables. The ANOVA results showed that the floor, surface conditions, and their interactions affected the COF and velocity of slipping significantly ( $p < 0.05$ ). The Pearson's correlation coefficient between the COF and the slipping velocity of the footwear sample was  $-0.81$  ( $p < 0.0001$ ). This implied that fast slipping was associated with low COF value. The slipping time and velocity of the footwear sample provided a basis to train the operators in making the slip and non-slip judgment. They are also helpful in developing an automatic friction measurement device that require slip/non-slip judgment.

Keyword : slips & falls, friction measurement, slip velocity, Brungraber Mark II.