ASSESSMENT OF POLISHING BEHAVIOUR OF SAND USING THE TEST DEVICE ACCORDING TO WEHNER/SCHULZE

L. Kirchmaier
Dipl.-Ing., Vienna University of Technology, Institute of Transportation
R. Blab *
Professor, Vienna University of Technology, Institute of Transportation
* Center of Road and Airfield Engineering,
Gusshausstrasse 28/230-3, 1040 Vienna, Austria, RBlab@istu.tuwien.ac.at

ABSTRACT
To ensure the safety of road users during driving manoeuvres an adequate skid resistance level of the wearing courses is required. Skid resistance of dense road surface layers besides the texture profile also depends on the polishing resistance of both coarse and fine aggregates. In the European standards so far requirements concerning the polishing behaviour of mineral aggregates are given merely with regard to the PSV (Polished Stone Value), tested on stone chippings 8/11 mm. No specific specifications are set for the sand fraction 0/2 mm. This paper details a new Austrian evaluation background for the polishing resistance of sand using a Wehner/Schulze testing device of the latest design. It will be showed that the polishing resistance between coarse and fine aggregates differs, thus separate requirements for different particle sizes are necessary because only the combination of highly polishing resistant sand and gravel enables a sustainable skid resistance of road surface layers. Furthermore the reproducibility and the comparability of sand polishing values determined by an accuracy experiment will be presented. Within the accuracy experiment different parameters, which may affect the test result, were investigated. Based on the evaluation background and the results from the accuracy experiment requirements concerning the sand polishing resistance were set for highly stressed wearing courses in the Austrian standards. This new requirement for wearing courses will lead to a better durability in terms of skid resistance and therefore to reduced maintenance costs.

KEY WORDS: Polishing resistance, Wehner/Schulze, PWS, skid resistance.