

Jolanta Radziszewska-Wolińska: Assessment of the Impact of the Paint System Composition on Its Fire and Performance Properties

The article presents the scope and results of tests on the fire properties of the paint coating system carried out as part of the internal project at the Materials and Structure Laboratory of the Railway Research Institute. These studies were part of a joint venture conducted in accordance with the agreement of 23.12.2016 on cooperation of the Laboratory of Materials and Structure Research at the Railway Research Institute and the Centre of Laser Technology of Metals at the Kielce University of Technology.

The aim of the undertaken topic was to develop a paint coating system with anti-graffiti coating that would meet the new European requirements relating to fire safety of rolling stock. The tests carried out so far of different painting systems from several manufacturers have shown that these requirements pose a big challenge for producers. The most difficult to fulfill is to reconcile the required flame propagation properties with the expected performance parameters, such as protective and decorative properties (especially the flexibility of the coating). The IK Laboratory carried out many specialized tests of fire properties for successively modified experimental coatings, developed by the paint manufacturer Barwa sp. z o.o., in cooperation with the Kielce University of Technology, taking into account the conclusions of the IK Laboratory, formulated on the basis of analysis of laboratory test results. Positive results were obtained for the modification consisting in introducing intumescent paint into the paint coating system.

Keywords: PN-EN 45545-2, fire safety of rolling stock, paint coatings