
Adam Dąbrowski, Szymon Klemba: Assessment of Rail Transport Conditions and of the Possibility to Increase the Role of Rail Transport in the Public Transport System of the Urban Functional Area of Olsztyn

This article is an introduction to the issue of integrating rail transport with the local public transport system in the Urban Functional Area of Olsztyn. It presents the definition of the said area and the current information on the possibilities of rail transport within it, derived from strategic documents and public debate. This is followed by a detailed description of the technical conditions of the railway infrastructure in the Urban Functional Area of Olsztyn, taking into account investments carried out in recent years, those in progress and those planned, as well as a description of the rail transport services provided. The final part of the article presents the principles of operation of public transport in Poland and some Polish examples of organisational integration. The authors intend to continue the discussion in a further publication.

Keywords: railway infrastructure, Olsztyn, public transport, integrated transport system

Marcin Garbacz: Influence of Laboratory Ageing on the Preservation of Anti-graffiti Properties for Paint Systems Used in Rolling Stock

The article describes and presents the influence of selected ageing mechanisms of paint systems currently used in railways in Poland in the context of maintaining their original protective properties against graffiti. Six paint systems with different types of finish, which had anti-graffiti properties, were tested, and the characteristics of the surface of the paint system, such as gloss and colour, were determined after a series of painting and cleaning of graffiti (markers and sprays). The tested objects were subjected to artificial simulated ageing using laboratory solar radiation in a synergistic combination of temperature and humidity in accordance with PN-EN ISO 16474-2 and in accordance with the proprietary methodology described in DN 001/08/A2/16 section 4.1.8 using the UV-C radiation source (discrete spectrum). The tested samples were also subjected to a different type of ageing mechanism under strong corrosive conditions in the form of neutral salt spray according to the methodology described in PN-EN ISO 9227.

Keywords: ageing tests, xenon-arc radiation, UV-C radiation, neutral salt spray, paint systems, xenotest, gloss, colour, anti-graffiti protection, rolling stock

Marceli Lalik: Requirements for the On-Board Part of the Stop-on-Request System in Rolling Stock

The article presents technical and functional assumptions concerning the on-board stop-on-request system, which should be taken into account by railway operators and rolling stock manufacturers when placing this system into operation.

Keywords: railway transport, rolling stock, stop on request

Małgorzata Ostromęcka , Jakub Siwiec: **Thermal Phenomena Related to Plastic Deformation During Tensile Testing and Their Microscopic Interpretation**

Thermal phenomena related to plastic deformation can be commonly observed. By simply touching a ruptured or bent sample, it is clear that the temperature has risen at the deformation site. Such observations can be carried out for qualitative or quantitative assessment. This paper serves to qualitatively relate the changes in the structure of the deformed material to the temperature increase observed with an infrared camera.

Keywords: strain of materials, heat generation, tensile test, dissimilar joint, friction welding

Małgorzata Ostromęcka, Michał Szymański: **Preparation of Specimens for Macro and Microscopic Examinations of Dissimilar Friction Welded Steel Joints and Their Evaluation According to Applicable Standards**

The article describes the issues related to the preparation for microscopic and macroscopic observation of dissimilar joints obtained by friction welding of 2H13 martensitic steel with B500B reinforcing steel. The results of etching and the main difficulties connected with the preparation of this type of samples for research were presented and discussed.

Keywords: specimen preparation, macroscopic examinations, microscopic examinations, dissimilar joint, friction welded joints

Marek Skrzyniarz , Włodzimierz Kruczek, Kamil Mike, Piotr Stypulkowski: **Development of a Model of Current Distribution in the Overhead Contact Lines for an Innovative de-Icing System**

Icing on the overhead contact line exclude the possibility of efficient current collection from the overhead contact line. The effects of icing can result in losses for carriers due to delay or cancellation of trains and also cases of damage to the traction infrastructure and pantographs. The existing methods of de-icing the traction network (mechanical, chemical and electrical) are currently ineffective. Therefore, it is necessary to develop a new electrical method that takes into account the detailed current flow in the over-head contact line. This article presents a model for calculating the current flow in the overhead contact line and the resistances of droppers, suspension elements, and distance holders measured on the basis of actual measurements.

Keywords: simulation model, de-icing of the contact line, current flow in the contact line