THE OPTIMIZATION OF PHOTO CATALYTIC MORTARS FOR ROAD PAVEMENTS

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ABSTRACT
The quality of the air in the European cities is a topical issue for local administrations. Nowadays, this problem is dealt with through a suitable management and a well-timed planning of the urban mobility. However there are other technological solutions, in road construction and maintenance, which can represent useful means of mitigation, such as the photo catalytic wearing courses.

The construction of a photo catalytic pavement involves the application, on the road surface, of a photo catalyst (TiO_2). However, most of the analyses carried out in Europe about the environmental benefits deriving from these materials are focused on the photo catalysis itself and not on the optimization of the building procedures. For this reason, the Authors give their contribution in order to optimize a particular photo catalytic wearing course. The benefits which derive from the use of this kind of layer include low installation costs, high durability and long term environmental effects.

The investigation was carried out through two main phases: the first one was focused on analytic and laboratory analysis; the second one was performed by a full scale section test. The first phase was focused on developing an analytic penetration model of the mortar in the open grade layer, with a complete laboratory investigation. The main goals of the field phase were both the development of the working method by optimizing the operating times and methodologies of the bituminous mixtures and the mortar and the analysis of the texture properties of the finished wearing layer.

KEYWORDS: Photo catalytic pavements, photo catalytic mortars, air pollution.