

SBS POLYMER ADDITION FOR IMPROVING THE ELASTIC PROPERTIES OF ROAD BITUMENS USED IN POLAND

WOJCIECH GRABOWSKI, MIECZYSLAW SLOWIK
Poznan University of Technology
Institute of Civil Engineering, Poland

SUMMARY

The elastic properties of the four bitumens used in Poland for road pavement construction were the subject of this study. The following bitumens were analysed: D 70(P), D 50(G), D 70(G) and B 55(N). These bitumens were modified with addition to 0, 2, 4, 6 and 8% of polymer SBS Kraton D-1101CM.

A quantitative assessment of the influence of the polymer SBS for improving the elastic properties of road bitumens is the main object of the paper.

The elastic recovery test was used as a measure of the elastic properties of the bitumens.

The method of assessment consisted of comparing the elastic properties of the base bitumens to the modified ones. The following quantitative measures of assessment of the elastic properties were used:

- elastic recovery after 2 minutes, ER^{2min} ,
- elastic recovery after 1 hour, ER^{1h} ,
- coefficient of elastic retardation, α_s , calculated from the formula:

$$\alpha_s = \left(1 - \frac{ER^{2min}}{ER^{1h}} \right) \cdot 100, \%$$

Assessment of temperature susceptibility of the modified bitumens was made by measuring the increase of Softening Point R&B ($\Delta R\&B$) and calculating the Penetration Index PI.