New surface layers with low rolling resistance tested in Denmark

The project ‘CO2 emission reduction by exploitation of rolling resistance modeling of pavements’ (COOEE) was started in 2011 to establish a scientific background for development of novel pavement types and asset management solutions that minimize the rolling resistance for cars and trucks, the purpose being to reduce CO2 emission from the transport sector.

In summer 2012, three different test sections were constructed on a highway located near Vordingborg, Denmark, in order to verify the respective Rolling Resistances; the main purpose was to develop and design new surface layers with reduced Rolling Resistance coefficient that could improve energy efficiency of the roads. In particular, two new types of Split Mastic Asphalt (SMA) were developed and compared to a reference one; both mixtures have a relatively small maximum grain-size, 6 mm and 8 mm, respectively. Surface measurements such as Skid Resistance and Mean Depth Profile were appropriately verified in order to fulfill these essential texture values. Samples were taken and studied in the laboratory to analyze the volumetric characteristics. Rolling resistance measurements have shown that both new SMAs have a reduced Rolling Resistance compared to the traditional one.