Asphalt mixtures with a high amount of RAP – case study

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Abstract. A case study of one trial section in the Pilsen region is presented. The pavement in the section was newly constructed in 2015 using one type of an asphalt concrete mixtures with varying RAP content. The constructed surface course comprises of 0% to 50% RAP. In order to restore the aged binder properties and to avoid the embrittlement of the produced mixtures, a rubber-based modifier/rejuvenator was employed. For technological reasons during manufacturing processes, which engage a parallel drying drum, a crude oil-based rejuvenator was also added. This article contains the preliminary data from an on-going project focused on monitoring the properties of bituminous binders contained in asphalt mixtures. The actual bituminous binders were extracted straight after production, after 6 months and after 12 months. The binder characteristics are evaluated using empirical testing as well as functional tests. Low temperature properties are measured by a Bending Beam Rheometer (BBR). The preliminary results show, that the bituminous binders properties change significantly in a relatively short period of time. The progress in binder' characteristics is contradictory to up-to date knowledge. The probability that the phenomenon of diffusion between aged binder and rejuvenator agents occurs exists. Moreover, the data might indicate that the process of rejuvenator evaporation takes place.