

# CONFERENCE

# ASPHALT PAVEMENTS 2023

## Let's asphalt out of the crisis

28–29 November 2023, Czech Republic

# AV '23

### Sustainability and digitalization of asphalt pavements

On the second day of the conference, the third and final topic is on the agenda. The general reporter **Jan Valentin** will summarize all the 13 contributions submitted by both domestic authors (Petr Svoboda et al., Tomáš Koudelka et al., František Buráň, Jan Valentin) and foreign authors (Shahin Eskandarsefat and Loretta Venturini, Samir Irzayev, Kurt Birngruber, Sebastian Miesem, Bruno Marcant, Adriana Czímerová et al., Maxmilian Brand et al., Thomas Leopoldseder). The contributions cover a wide range of topics that can be included in the section „Sustainability and Digitalization“. Papers deal with the issue of digitalization (2 papers), the question of wider use of reclaimed asphalt (7 papers) or the use of new ecological additives (3 papers). One paper maps the current state in the production and quality of aggregates as an essential component for asphalt technology.

Subsequently, the 7 authors will complement their submitted papers with additional current information and results:

#### → Use of RAP for emulsion microsurfacing (Kurt Birngruber)

Current results from work carried out over the last 5 years in various European countries under different climatic and traffic conditions. The experience to date shows that reclaimed asphalt can be effectively used even for cold thin layer pavement. The use leads to savings of high quality and scarce aggregate without any impact on the quality of the thin layer pavement and its performance.

#### → Hot asphalt recycling with high reclaimed asphalt content: the case studies in Spain and in Czech Republic

(Shahin Eskandarsefat)

Knowledge and experience from test sections, which were carried out on sections with different climatic conditions and traffic load. The results presented are related to the mixture for surface course with asphalt binder of 50/70 gradation containing 50% of reclaimed asphalt and rejuvenator.

#### → “100% re-use“ of asphalt mixtures – first experience from the Czech Republic (Jakub Šedina)

The representative of the authors' team will supplement the submitted paper with additional data from the verification of the properties of the asphalt mixture containing 100% reclaimed asphalt. The technology has been verified in the past, e.g. in the Netherlands, but practical experience is still lacking in the Czech Republic. The authors' team investigated the effect of 100% replacement of aggregate with reclaimed asphalt and the impact on both the quality of the asphalt mix and the operation of the plant.



Václav Valentin



Jan Valentin



Kurt Birngruber



Shahin Eskandarsefat



Jakub Šedina

## → Status quo of the use of rejuvenators – German perspective

(Sebastian Miesem)

This presentation complements the submitted paper with further updated information from Germany. Several changes are currently taking place in this market – firstly, there is a growing pressure to increase the use of reclaimed asphalt in almost all types of asphalt mixtures and, at the same time, the obligation to use only warm mixtures will be introduced with effect from 1 January 2025. In summary, this represents a major challenge for both additive manufacturers and asphalt mix producers.



Sebastian Miesem

## → Aggregate requirements in the context of shortage of materials for transport construction (Petr Svoboda)

Undoubtedly a very topical presentation that will complement the contribution in the proceedings with information and developments during this autumn. It clearly shows that the shortage of quality aggregates is more than current and there is no prospect of opening new mining sites. It is therefore essential to really focus on a higher and more efficient use of reclaimed asphalt, which is a source of quality aggregate.



Petr Svoboda

## → Warm mix technology with enhanced workability window

(Bruno Marcant)

The presentation is logically linked to the presentations on warm mixtures and therefore also addresses the environmental impact of the production and laying of asphalt mixtures. Experience shows that however widespread the use of FT waxes is, this type have some negative impact on the properties of the asphalt binder. This is an undesirable phenomenon from the point of view of ensuring the quality of the asphalt mix. Therefore, new types of waxes have been developed which allow the production of asphalt mixtures at lower temperatures without affecting the parameters of the asphalt binder in any way.



Bruno Marcant

## → How can the digital value chain between the construction and the mixing plant contribute to sustainable road construction (Thomas Leopoldseder)

Sustainable development in road construction is coming to the fore. The reasons for sustainable development and the opportunities offered by the introduction of digitalization with the integration and optimization of existing processes are illustrated in this presentation.



Thomas Leopoldseder

**Václav Valentin**, moderator of the topic Sustainability and digitalization of asphalt pavements

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