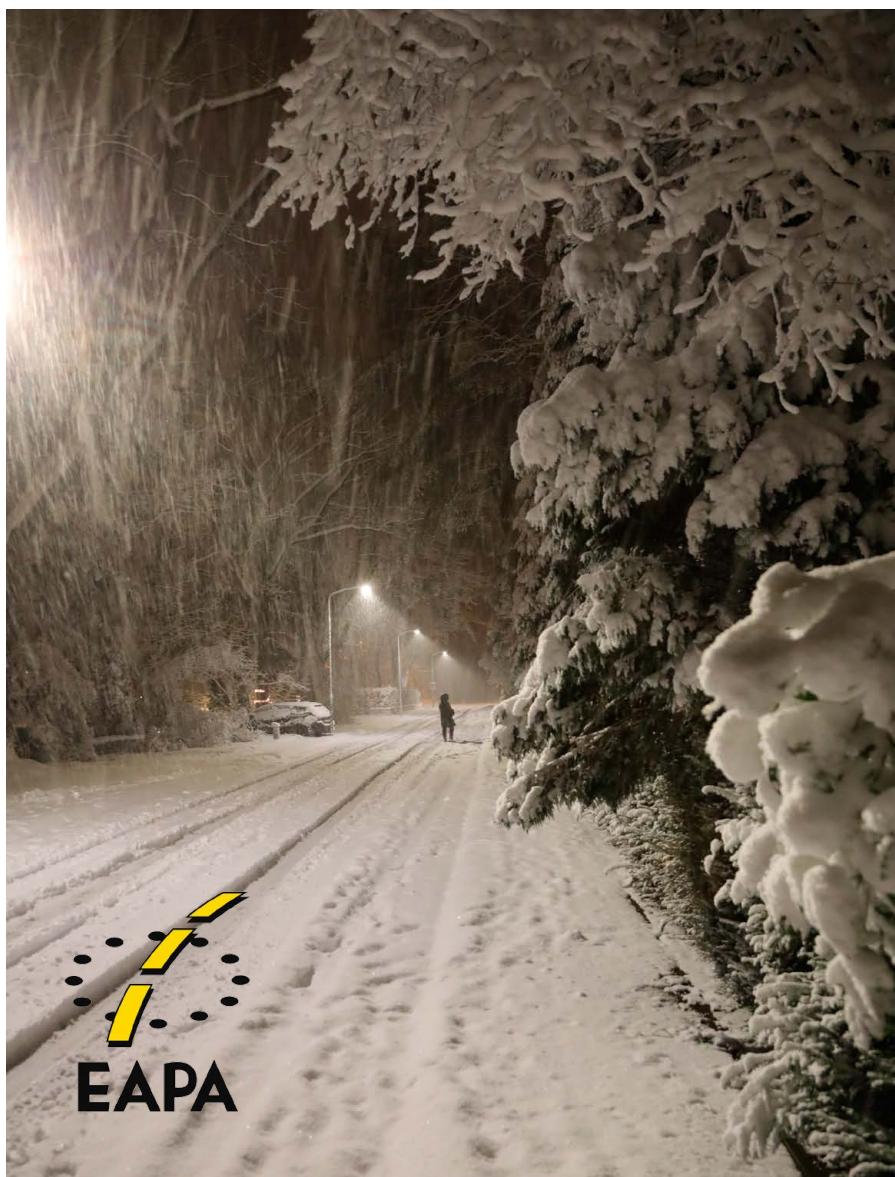


EAPA MAGAZINE 41 - DECEMBER 2017



<b>LIST OF CONTENT</b>	<b>PAGE#</b>	<b>PAGE#</b>	
<b>INTRODUCTION</b>	<b>04</b>		
<b>EAPA COMMITTEES</b>	<b>06</b>		
Joint EAPA Executive Committee and Directors' Group	06	<b>INTERESTING WEBSITES</b>	<b>45</b>
EAPA Asphalt Plant & Equipment Manufacturers Group	08	<b>UPCOMING CONGRESSES</b>	<b>46</b>
EAPA HSE Committee	09	<b>EVENTS LIST</b>	<b>50</b>
EAPA Technical Committee	11	<b>COLOPHON</b>	<b>52</b>
International Road Maintenance Day	14	<b>EAPA MEMBERS</b>	<b>54</b>
<b>NEWS FROM BRUSSELS</b>	<b>16</b>		
<b>EAPA-EUROBITUME ACTIVITIES</b>	<b>20</b>		
Asphalt Advantages	20		
E&E Event 2018	22		
<b>EUROPEAN STANDARDISATION</b>	<b>26</b>		
CEN TC336	26		
<b>OTHER MEETINGS &amp; EVENTS</b>	<b>28</b>		
Swedish Asphalt Academy	28		
CECE Skills Breakfast Debate	30		
Asphalt Pavements 2017 Conference	33		
7 <sup>th</sup> National Turkish Asphalt Symposium	36		
Colloquium Asphalt, Bitumen and Pavements	37		
ASPARi Symposium	42		

## INTRODUCTION

Welcome to the 41<sup>st</sup> Issue of the EAPA Newsletter, now called EAPA Magazine.

We decided to call it Magazine now for several reasons. First of all by its size it looks more like a magazine than a newsletter. Next to that the news we present could be several months old, but still interesting and a magazine usually has articles, stories and / or pictures on multiple subjects by multiple authors.

When you read the articles in this EAPA Magazine you will see that there are some items that are addressed at different places and they are related to the future, the workforce and the future work force.

In the asphalt sector the work is done by people and machines that mix, pave and compact.

The world around us is changing and we have to be aware of those changes. In the future the vehicles that are using the (asphalt) road will be different from the current ones. We go into the direction of automated vehicles and that will have an impact on our industry. Therefore we need to look at these future changes.

At this moment the economy is improving and more construction work has to be done. That means that many construction companies need new / more workers. In several countries more tech-

nical people are needed than available. Within this technical area the asphalt industry will have to 'compete' with other construction sectors to attract new workers. To be able to attract new workers we have to be / become an attractive industry.

I still remember the presentation of our Japanese colleagues in 2013 where they described how the outside world saw our industry / construction industry. They called it the 3K industry (Kitanai) dirty, (Kiken) dangerous and (Kitsui) hard work. They showed a mother with a small boy, looking at a road construction job site, and the mother said to her son: "Hey Boy, if you do not study hard, you must do such a job".

Now they promote the construction industry by talking about "i-Construction" and they have new 3 K's: (Kyuyo) Salary, (Kyuka) Holiday and (Kibou) Hope. Next to that they are working on improving the corporate management environment by increasing productivity, by improving the wages, by make the workplace attractive and to improve safety at the work place. As asphalt industry we have the advantage that we apply the final layer(s) when building or maintaining a road. So we provide the final look and we can use this in promoting our industry to the young generation and even to the kids and girls going to primary schools.

To generate the interest of children for our industry we have to show them what our industry is and does. During the CECE Breakfast Event in the European Parliament there was a nice presentation regarding Primary Engineering, which showed how this could be done.

When our industry has attracted the new work force we of course should do all to keep them in the industry and that they can develop themselves. That brings me to education and training. This subject is covered in several items e.g. in the article reporting about the ASPARi Symposium. Here was a presentation about an alternative approach of training asphalt crews and one about rating the work of asphalt crews by a High Reliability Performance Index. This last one showed that using this index, it resulted in a better efficiency, an increasing learning curve, less irritations, a better team spirit, less repair work, less CO<sub>2</sub> and significant financial savings.

During the 16<sup>th</sup> Colloquium Asphalt, Bitumen and Pavements in Bled there were two presentations I would like to mention. The first one was an invite lecture about public procurement for a more sustainable infrastructure based on functional requirements. This presentation showed e.g. that a good and constructive cooperation between the asphalt industry and the road authori-

ties is important to assure quality and to develop new technologies. The second presentation showed trends and innovations in the public works & civil engineering industry. The speaker held a mirror up to the audience and showed that the road sector is not really innovating at this moment. Things are changing rapidly and in the future we will have mobility providers and the users will have to pay for this mobility. We are seeing innovations every day and we need to adapt. We have to innovate to remain part of the new world, which is already there.

The above mentioned items are also topics that we will discuss as industry at the E&E Event 2018 in Berlin, which has the theme "Preparing the asphalt industry for the future".

Within a few days we are entering a new year and that is a nice opportunity to make plans for the future. Articles in the EAPA Magazine could give you inspiration to create ideas and plans for the coming year or years. We have to improve and to innovate to remain a great industry. Enjoy reading this magazine and I wish you are a good, healthy and successful 2018.

Egbert Beuving,  
Secretary General of EAPA

## EAPA COMMITTEES

### JOINT EAPA EXECUTIVE COMMITTEE & DIRECTORS' GROUP

The EAPA Executive Committee and the EAPA Directors' Group had a joint meeting on 10<sup>th</sup> and 11<sup>th</sup> October 2017 in the offices of Asfaltindustrien (Danish Asphalt Pavement Association) in Ballerup, Denmark.

The meeting started with an update regarding EAPA secretariat, the membership situation and the financial situation of EAPA.

Egbert Beuving explained that he will retire end 2018 and per 1-1-2019 Karcher will become Secretary

General of EAPA. That means per 1-1-2019 a new EAPA staff member is needed to deal with the technical items and standardisation. Therefore, EAPA is now looking for a new Technical Director. The Task description of the Technical Director was discussed in the meeting as well as the recruiting procedure.

Under agenda item "Communication, Innovation, Dissemination and Education" the use of Social Media and the Asphalt Advantages cam-

paign were discussed. Next to that there was an update regarding contacts with other associations, the GAPA meeting in Melbourne, the E&E Event 2018 in Berlin and the E&E Congress 2020 in Madrid.

Juan José Potti of ASEFMA presented a proposal for organising an International Road Maintenance Day (IRMD) every year. Every day there is a special day for something and it would be good to have a Road Maintenance Day every year. The goal is to push journalist to cover this item on that date. The most important item for the roads is maintenance and therefore he called it "International Road Maintenance day". The idea is to get all people involved. The proposal of Potti is to start in 2018 and it will be linked to emissions.

When we have a coordinated action worldwide at the same time with the same message on Twitter and Social Media etc. it will get the necessary attention. It is not costly, and it is not much work. A one-page document will be enough, and it has to be spread well.

Potti volunteered to lead this project.

More information about this International Road Maintenance Day (IRMD) initiative can be found as separate item in this EAPA Magazine.

At "EU issues - What is going on in Brussels" there was an update on EU issues, so ongoing legislation, what is in the pipeline, and discussions within the EC.

During the Round table discussion each country presented in short information about the main issues of particular interest or importance that they are working on at this moment.

Under agenda item "Health, Safety & Environment Topics" there was a report of the EAPA Health, Safety & Environment Committee. Here Carsten Karcher explained in short, the main items that were going to be discussed in the next EAPA HSE Committee meeting. Here also possible future occupational health studies were discussed as well as reducing CO<sub>2</sub> by lowering the Rolling Resistance of road surfaces.

At agenda item "Technical Topics" there were reports of the EAPA Technical Committee, the EAPA Asphalt Plant & Equipment Producers Group and European Standardisation.

The next joint EAPA ExCo and Directors' Group meeting will be held on 17 April 2018 in Brussels and on 18 April 2018 there will be a joint EAPA – Eurobitume Executive Committee meeting.

## EAPA ASPHALT PLANT AND EQUIPMENT MANUFACTURERS GROUP

On 5 October 2017 the EAPA Asphalt Plant and Equipment Manufacturers (AP&EM) Group had a meeting in Paris.

The first main item discussed was the Harmonisation of M2M (Machine to Machine) Communication Protocol in road building. A CECE (Committee for European Construction Equipment) / EAPA Ad-hoc Group "Road Equipment Communication Protocol" is working on this subject.

This Ad-hoc Group is evaluating the possibility to develop a common M2M communication protocol based on actual telematics standards.

They first discussed the on-board communication and the gateway communication and now they are working on "Gateway to gateway communication". By using a gateway, all ages of the fleet and all brands can be used.

The goal is to define a structure and a minimum amount of data needed. The protocol can be seen as a language and a string of e.g. 60 elements has to be defined. 30 of them are harmonised ("mandatory") and the other 30 are free for the customer / specific ("optional") for the company. When the structure in the data is defined, the equipment producers know how to deal with the numbers of their own system.

Recently the Ad-hoc Group agreed on the data structure and the work on the data format is close to be finished. The harmonised / mandatory data were discussed in the AP&EM Group meeting.

The second item was the preparation of the presentations for the meeting with the Swedish Asphalt Academy (Asfalskolan), which was scheduled for the next day. A summary of this meeting is given in a separate item in this Magazine. The Swedish Asphalt Academy organises many asphalt courses in the winter time and they train the workers. About 35 to 40 persons / professionals are giving those courses.

Other items discussed were Data Management Systems, CECE items and the IICTG (International Intelligent Construction Technologies Group) 2017 conference that was held in Minneapolis, USA.

The next meeting of the AP&EM Group will be held on 21 February 2018 in Paris.

## EAPA HSE COMMITTEE

The latest HSE Committee meeting was held on 18<sup>th</sup> October 2017 in Paris. 22 participants from 14 different European countries attended the meeting.

In this one-day meeting traditionally the latest developments in the asphalt branch related to health, safety and environment were discussed and relevant information from different European countries on various topics was exchanged.

Amongst several environment items the committee especially discussed this time the potential contribution of the asphalt industry to the reduction of CO<sub>2</sub> emissions in the transport sector. In this field, the National Asphalt Pavement Association (NAPA) of the USA and the EAPA Secretariat held an internal workshop together on rolling resistance in September in Brussels. NAPA wanted to learn more from the European knowledge. Furthermore, EAPA Secretariat contributed to se-

veral activities together with other European Associations of the transport sector including a high-level event, which was held on 17 October 2017 in the European Parliament, where the stakeholders showed e.g. what the contribution of well-maintained roads is to the CO<sub>2</sub> emission reduction of vehicles using the road.

Linda Evjen from Switzerland gave a very informative presentation about CO<sub>2</sub> emission reduction during asphalt production in Switzerland. She also explained the Swiss national regulation for this.

Many different topics in the field of health were discussed, amongst those e.g. ongoing European studies related to asphalt worker's health, measuring asphalt fumes and the handling of silica dust on the asphalt mixing plant.

The next meeting will be held on 11<sup>th</sup> April 2018 in Bonn.



HSE meeting in Paris



Linda Evjen

## EAPA TECHNICAL COMMITTEE

The EAPA Technical Committee had a meeting on 19 October 2017 in Paris.

At agenda item CEN TC 227/WG1 "Bituminous Mixtures" Egbert Beuving gave a report of the latest meeting CEN TC227 WG1 meeting that was held in May 2017 in Dublin and an update regarding the non-citation of the asphalt standards of the Official Journal of the European Union (OJEU) due to the introduction of new classes in the standards.

The European Commission will follow the procedure of the Delegated Act and this procedure will take about 1½ year. So it is expected that the new asphalt standards will be published in the OJEU in end 2018 or in the beginning of 2019.

Regarding CEN TC336 WG1 "Bituminous Binders for Paving" Beuving mentioned that the draft of EN 12591 Paving Grade Bitumen standard was in the Formal Vote stage at that moment. Task Group 5 of CEN TC336 WG1 had updated the tables of the PMB standard EN 14023 based on the 5 year review comments and they were discussed in the latest CEN TC336 WG1 meeting. Now Task Group 5 will update the rest of the PMB standard based on the agreed tables.

The Hungarian Proposal for creating a European Standard for Rubber modified bitumen was discussed in the EAPA TC meeting. It was agreed to propose to CEN TC336 to modify the PMB standard so it can be used for rubber modifications too. Otherwise several new proposals might follow as for instance for wax modified binders, low temperature binders, etc.

The draft paper of the Task Group Rejuvenators was discussed. It was agreed to create a short document and a longer (technical) version.

Laurent Porot gave a presentation where he explained the relevancy of the Black Diagram and the Cross-over temperature. This is the temperature where the phase angle  $\delta$  is 45°.

Porot and Jiri Fiedler also explained the Glover-Rowe parameter. This method is a simple method to show the influence of the rejuvenator.

The revised EAPA-Paper Heavy Duty Surfaces – the arguments for SMA (as drafted by Bernd Abele) was discussed. The goal is to have this paper approved in June 2018.

There was a short report of the EAPA Asphalt Plant & Equipment Producers Group (AP&EP) activities and the items that were included in the proposed Machine to Machine (M2M) communication protocol were discussed. The EAPA TC also formulated questions for the next AP&EM Group meeting.

Under agenda item CEN TC227 WG6 "Sustainability" Beuving mentioned that the draft Product Category Rules for Bituminous Mixtures were recently sent to CEN TC350 for comments. When the comments of CEN TC 350 have been received the draft will be updated if needed and after that the draft can go out for CEN Enquiry.

Gülay Malkoç gave a presentation regarding Self-healing asphalt and Breixo Gómez Meijide of the Nottingham Transportation Engineering Centre (NTEC) gave a presentation regarding the Infravation project HEALROAD.

Other technical subjects discussed were:

- Future road requirements – After having discussed this subject it was decided to collect ideas in a small group and to create a structure in the topics mentioned. The results will be discussed in the next EAPA TC meeting.
- Bitumen Quality Characterisation
- The possible need for European Standards for Bitumen additives. The conclusion of the discussion was that there is no need for such standards at this moment but there is a need for a (new) Modified Bitumen Standard blind to modifiers.

The next EAPA TC meeting will be held on 12 April 2018 in Bonn.



EAPA TC meeting



Breixo Gómez Meijide



Meeting of Task Force Rejuvenators

## INTERNATIONAL ROAD MAINTENANCE DAY

During the Joint EAPA Executive Committee and Directors' Group meeting in October 2017 Juan José Potti of ASEFMA presented a proposal for organising an International Road Maintenance Day (IRMD).

Every day is a special day for something and it is important to have a Road Maintenance Day every year too. The goal of this day is to push journalist to cover this item on this date because the most important item for the roads is maintenance.

The first International Road Maintenance Day (IRMD) will be held Thursday April 5th 2018.

It is planned to have this day from now on yearly on every first Thursday of April.

The goal is to have this International Road Maintenance Day on all continents.

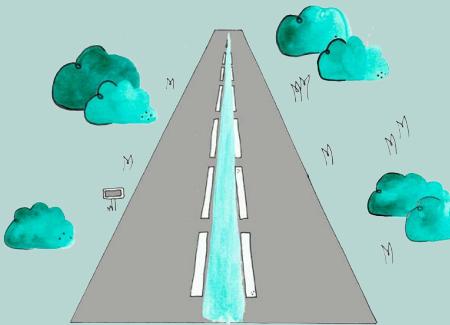
The motto of the 2018 edition will be "Maintaining roads is protecting the environment".

The brochure "Road pavement industries highlight huge CO<sub>2</sub> savings offered by maintaining and upgrading roads" can be used to promote this event.

This initiative is to stimulate countries around the world to generate attention regarding Road maintenance in their country because road maintenance is a national issue. Each country / each national association might use this opportunity to generate attention for the importance of adequate road maintenance.

In Spain the intention is to have an open discussion between different journalists. In this way all people receive the principle arguments: comfort and emissions. There will be an informative website both in English and in Spanish offering general information about the day, the manifest, resources for the media (press releases of each organization that develops activities, promotional material, etc.), information of scheduled events (kind of event, place of celebration, working language), a map with countries joining the celebration, information as how to participate, the option of including events that organisations/companies are planning to celebrate, space for declarations of prominent people in our sector, space for logos of organisations that sponsor/celebrate the event, access to network information.

## ROAD PAVEMENT INDUSTRIES HIGHLIGHT HUGE CO<sub>2</sub> SAVINGS OFFERED BY MAINTAINING AND UPGRADING ROADS



Almost 28 million tonnes of CO<sub>2</sub> from road transport could be saved yearly  
- let's not waste this opportunity!



EUROPEAN ASPHALT PAVEMENT ASSOCIATION

[www.eapa.org](http://www.eapa.org)



EUROPEAN PAVEMENT INDUSTRIES

[www.eupave.eu](http://www.eupave.eu)



[www.fehrl.org](http://www.fehrl.org)

There will be a specific hashtag of the event and a creation of Twitter and Facebook accounts to take up initiatives and disseminate the event.

There will be a presentation of planned events in the sector, starting with PPRS 2018 in Nice.

For more information you can contact the EAPA Secretariat or Juan José Potti of ASEFMA.

If you are going to organise the International Road Maintenance Day (IRMD) in your country, please inform EAPA Secretariat and / or Juan José Potti of ASEFMA.

## NEWS FROM BRUSSELS

**19 SEPTEMBER 2017**

EAPA hosted a joint workshop on Rolling Resistance together with the National Asphalt Pavement Association (NAPA) in Brussels. Eleven experts from USA and Europe gave eight presentations during the day and showed the knowledge in this field. The fruitful exchange and the discussions were a big success. In December NAPA will hold a similar workshop in the USA with American experts.



Participants of the NAPA/EAPA workshop on Rolling Resistance



Debate with several Members of European Parliament reducing CO<sub>2</sub> emissions in the transport sector

**17 OCTOBER 2017**

During a high-level breakfast event in the European Parliament with several Members of Parliament from the Transport Committee stakeholders showed e.g. the contribution of well-maintained roads to the CO<sub>2</sub> emission reduction of vehicles using the road. The contribution of the road to CO<sub>2</sub> reduction with smooth and even surfaces and therefore reduced rolling resistance could be 3 to 5%.

EAPA Secretariat contributed in the last months and years to several activities together with other European Associations of the transport sector including e.g. the European Automobile Manufacturers' Association's (ACEA) on a joint initiative on "Reducing CO<sub>2</sub> in the transport sector together".

**8-9 NOVEMBER 2017**

EAPA Secretariat represented together with its UK member Mineral Products Association (MPA) the Asphalt Advantages campaign in Birmingham, UK at the Highways UK Conference.



Malcolm Simms, MPA (left) and Carsten Karcher, EAPA



Participants of the Asphalt Advantages workshop

**14 NOVEMBER 2017**

The joint Eurobitume and EAPA initiative "Asphalt Advantages" is preparing its strategy for 2018. Therefore, a workshop with several asphalt advocates was held with the newly selected agency "aspect" in Brussels. Currently, aspect is preparing this strategy on basis of these discussions.

## 30 NOVEMBER 2017

In February 2017 a large number of European Industrial sectors adopted for the first time a "Joint Declaration for an ambitious EU industrial strategy" in which they called on the European Commission to adopt a long-term Action Plan to tackle the challenges that the industrial sectors are facing.

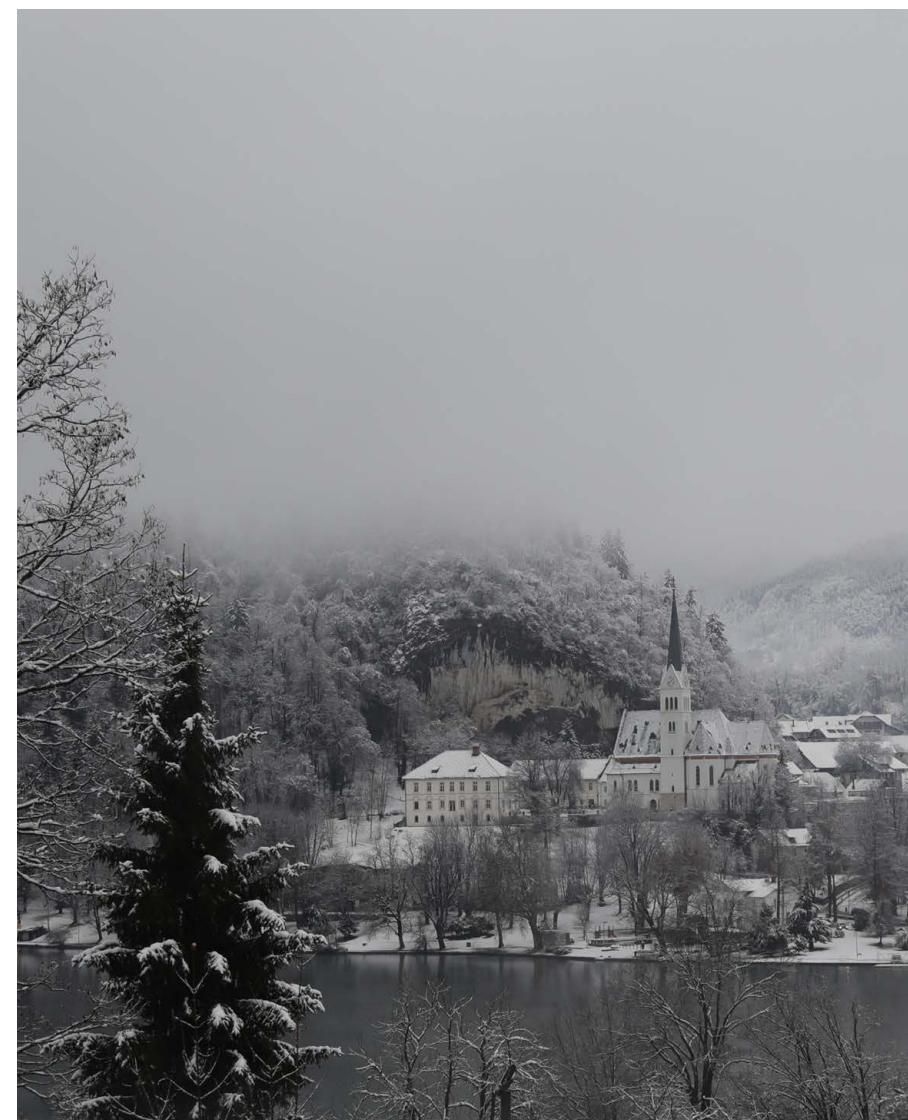
Following this Joint Declaration of February 2017, these European industrial federations (now 122 in total) recently co-signed a Joint Reaction Paper entitled "For an ambitious EU industrial strategy - going further", in which they identify all key objectives and measures that should be at the heart of any ambitious and long-term EU industrial strategy, taking the Commission Communication of 13 September as a starting point.

This large coalition of European industrial federations representing all kinds of manufacturing sectors is now called Industry4Europe, bringing together 122 European industrial federations, including EAPA.

Industry4Europe was officially invited by the Estonian Presidency to present its views to the Ministers of Economy/

Industry of all Member States and of EU Industry Commissioner Elżbieta Bieńkowska during Competitiveness Council on 30 November 2017.

The Joint Reaction Paper can be downloaded at: <http://www.unife.org/component/attachments/?task=download&id=855>



Bled November 2017

## EAPA-EUROBITUME ACTIVITIES

### ASPHALT ADVANTAGES

The Asphalt Advantages online campaign, which has been launched jointly by EAPA and Eurobitume in October 2014, is currently preparing a new strategy for the campaign in 2018 with its new agency.

Based on the feedback from stakeholders from an online-survey a workshop with selected asphalt advocates was held in Brussels in November to develop a new strategy for the campaign and to become more successful. You will soon hear more from the Asphalt Advantages!

Everybody is invited to spread the asphalt advantages and the information given on the website. Therefore, different supporting tools have been created. Those are provided in a toolbox and can be downloaded from this website to support the campaign. **Please feel free to add the provided tools on your association's or company's website or use the tools for your printed or online magazine. We would be glad to see the advertisement in your publications.** Some of these adverts can be found in this newsletter as an example.

# Asphalt. ADVANTAGES

#AsphaltAdvantages

f    t    in



## COMFORT

Asphalt is the ideal material for bicycle paths

[AsphaltAdvantages.com](http://AsphaltAdvantages.com)

## E&E EVENT 2018 – REGISTRATION OPEN NOW!

On 14 and 15 June 2018 the E&E Event 2018 will be held in Berlin. The theme of the Event is "Preparing the asphalt industry for the future".

The provisional programme is available on the website <http://www.eeevent2018.org/provisional-programme> and it can also be downloaded.

Katrina Sichel will be the moderator of this Event. She was also moderating the E&E Congress 2016 in Prague.

The main objective of this event will be to focus on the preparations needed by the asphalt industry to ensure it is fit for future purpose by exploring the following important strategic issues, some have already been highlighted in the E&E Congress 2016.

The E&E Event 2018 is addressing senior managers and experts from road related industries, governments, local authorities, contractors, engineers, user groups and product suppliers.

The programme in a nutshell is shown on the right page.



## DAY ONE - THURSDAY 14 JUNE 2018

- |                      |  |
|----------------------|--|
| <b>10.00 - 11.00</b> | Registration and Coffee & Exhibition                                 |
| <b>11.00 - 12.30</b> | Session ONE: Tomorrow's World, tomorrow's Roads, tomorrow's asphalt! |
| <b>12.30 - 13.45</b> | Lunch & Exhibition   |
| <b>13.45 - 15.15</b> | Session TWO: Financing Solutions for Roads                           |
| <b>15.15 - 15.45</b> | Coffee break & Exhibition  |
| <b>15.45 - 17.15</b> | Session THREE: Sustainability - Reducing CO <sub>2</sub> emissions   |
| <b>17.15 - 18.00</b> | Exhibition   |

## DAY TWO - FRIDAY 15 JUNE 2018

- |                      |   |
|----------------------|---|
| <b>10.00 - 11.00</b> | Session FOUR: Health & Safety best practices and future requirements  |
| <b>10.00 - 10.30</b> | Coffee Break & Exhibition   |
| <b>10.30 - 12.00</b> | Session FIVE: Technology - What are the challenges for implementation |
| <b>12.00 - 13.15</b> | Lunch & Exhibition  |
| <b>13.15 - 14.30</b> | Session SIX: Communication - How to attract new recruits              |
| <b>14.30 - 14.45</b> | Conclusions & Closing   |

The format of the Event will be based on creating effective interaction between participants to get a better common understanding on how to improve the future for the industry.

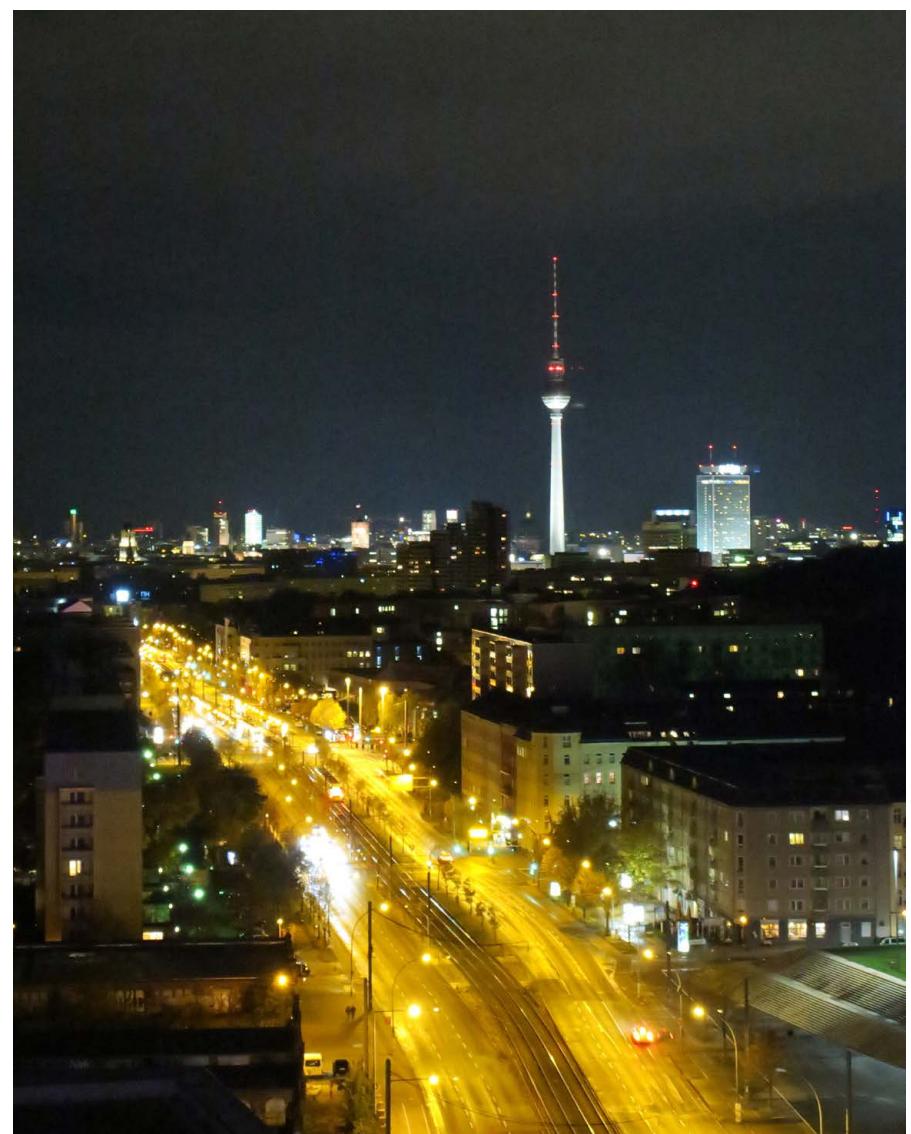
To reach this goal there will be an increased involvement of the participants through various direct interactions during the event combined with classical presentations.

The Event is accompanied by an exhibition.

The registration is open now. Please register on [www.eeevent2018.org](http://www.eeevent2018.org).



*E&E event meeting*



*Berlin seen from Andel's Hotel*

## EUROPEAN STANDARDISATION

### CEN TC336

The 15<sup>th</sup> plenary meeting of CEN/TC 336 was held on 13 and 14 November 2017 in the new building of CEN-CENELEC Management Centre (CCMC) in Brussels.

The meeting was chaired by the new chairman of CEN TC336: Olivier Moglia. Eric Balcaen is the new secretary of CEN TC336.

Gonçalo Ascensão, CEN Program Manager, explained the new rules in CEN.

EN 13924-1:2015 "Hard paving grade bitumens" and EN 13924-2:2014 "Multigrade paving grade bitumens" are not cited yet in the QJEU. FprEN 12591 "Paving Grade Bitumen" was approved at the Formal Vote but got a negative assessment from the New Approach (NA) Consultant. CEN TC336 WG1 will address the NA Consultant's comments and prepare an updated standard.

It was decided that CEN TC336 WG 1 will prepare a recommendation on the future of CEN/TR 15352:2006

"Development of performance-related specifications: status report 2005".

It was decided to keep the Advisory Group in CEN TC336. EAPA will be / remain member of this Advisory Group as one of the Stakeholders.

Anja Sørensen presented as convenor of CEN TC336 WG1 "Bituminous binders for paving" the process report of WG1. The revision of EN 14023 "PMB" is ongoing. It is expected that the draft revised standard will go out for CEN Enquiry by end 2018.

Bernard Eckmann presented as convenor of CEN TC336 WG2 "Fluxed bitumen and bituminous emulsions" the process report of WG2.

The Hungarian proposal of New Work Item on rubber modified bitumen was presented and discussed. There were many comments. Hungary was asked to create a new proposal with a wider scope.

The next CEN TC336 meeting will be held on 13 and 14 November 2018 in Brussels.



CEN TC336 meeting



Chairman Olivier Moglia (l) and secretary of CEN TC336 Eric Balcaen (r)

## OTHER MEETINGS & EVENTS

### SWEDISH ASPHALT ACADEMY

The Swedish Asphalt Academy had a meeting in Paris on 6 October 2017 and several presentations were provided by members of the EAPA Asphalt Plant & Equipment Producers Group.

Martyn Luby welcomed the group and the speakers. The theme of the meeting was "Future Trends for the Asphalt Industry".

Glenn Lundmark of the Swedish Asphalt Academy gave an overview of the education activities of the Academy for the asphalt industry in Sweden. The mission of the Swedish Asphalt Academy is to provide further training and education for pavement engineers and workers from all parts of the industry, as well as municipalities and road authorities. Furthermore it promotes recruitment to the industry and to technical schools and universities.

Egbert Beuving (EAPA) give a short overview of EAPA activities and its committees and presented the EAPA paper "The Ideal Project" and the AsphaltAdvantages campaign.

Anton Demarmels (AMMAN) explained what the CECE-EAPA Ad-hoc Group "Road Equipment Communication Protocol" was doing and showed the construction site and the asphalt plant of the future. He addressed smart technologies for road construction and modern asphalt production with low CO<sub>2</sub> emissions. As an example he mentioned a wood dust burner for an asphalt plant and new technologies for reusing of reclaimed asphalt. He also spoke about autonomous vehicles and autonomous rollers. He concluded with a conclusion of a Mc. Kinsey Global Institute analysis, which stated that the construction today is at the bottom of the adoption rate of digitisation. So we have to catch up quickly.

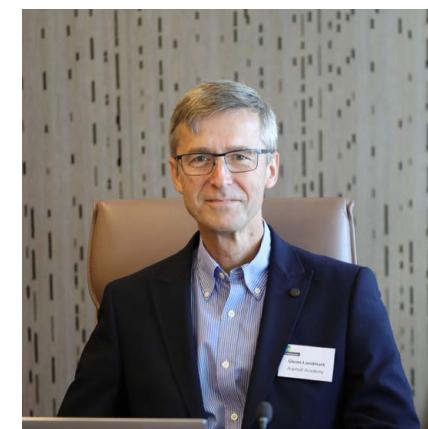
Martyn Luby started with explaining what Intelligent Compaction is, which parameters are measured and what the benefits are. In the USA demonstrations and projects were conducted in 23 states over the past seven years. Through this comprehensive investigations FHWA has confirmed that Intelligent Compaction systems add measurable value to the compaction process. These agencies have agreed upon the definition and requirements for Intelligent Compaction systems to be used on federal and state projects. He also explained that the VETA software can be used for hand-

ling and data analyses of Intelligent Compaction data. VITA can also be used for processing thermal imaging data.

Didier Thevenard (Global Equipment Director of Eurovia and President of the USIRF Equipment Committee) and Christine Leroy of USIRF explained what was happening in France in the USIRF Equipment Committee and the contractors' needs in Horizon 2020.



*Swedish Asphalt Academy meeting*



*Glenn Lundmark*



*Anton Demarmels*



*Martyn Luby*

## CECE SKILLS BREAKFAST DEBATE

On 22 November 2017 MEP Brando Benifei, Member of the Employment Committee, hosted a Breakfast Debate in the European Parliament, organised by CECE, the Committee for European Construction Equipment. This event was organised in the framework of the European Commission's 'European Vocational Skills Week 2017' to discuss the skills issue in the construction sector with key stakeholders.

Riccardo Viaggi, CECE Secretary General mentioned in his introduction that demographic change, too few women on jobsites, lack of engineers, severe competition, little interest in Science, Technology, Engineering and Mathematics (STEM) disciplines and growing demand for digital skills are the biggest challenges in the construction and equipment sectors. Therefore CECE decided to address the skills gap by providing a comprehensive review of the situation and developing solutions together with its partners. Therefore, CECE is working together with FIEC (the European Construction Industry Federation) and European Rental Association (ERA) across the full construction value chain towards the improvement of construction industry's image to attract young talents to the sector, in order to close the skills gap and to tackle the digitisation issue of the construction industry.

EU Commission representative Lucilla Sioli stressed that the skills gap was a severe problem throughout the EU and that it is essential to raise more awareness in the member states. Future jobs will require new and more advanced skills in engineering and ICT (Information and Communication Technology), as well as understanding and handling of specific software and basic understanding of new technologies such as automated construction machines. Next to that throughout Europe there are also many challenges in terms of attracting and recruiting young and sufficient workers with the right skillset.

CECE President Bernd Holz mentioned in his keynote that we all must invest a lot to inspire young people to find the construction sector attractive. He gave examples of what they already did during the Bauma 2013 and 2016 to inspire young students.

Jean-Louis Marchand, President of FIEC, underlined the importance of the construction industry and mentioned that the main problem we are facing now is to attract, educate and retain people in our sector. We have to convince them to come to our sector by giving them perspective for the future and therefore we have to take the lead together.

Susan Scurlock explained the Primary Engineer Programmes in the UK where they train teachers to bring technology to the class room to show them what engineers are doing. Then the teachers can introduce it into the class room and they invite engineers to talk about their profession, with the goal to increase the number of engineers entering the profession. Girls and boys need to see the industry to be able to get inspired and to choose for working in the industry.

Participants of the debate agreed that exchanging ideas, sharing experiences and even structuring isolated actions would be vital to be successful in mastering the skills challenge.



CECE breakfast Debate



MEP Brando Benifei



Riccardo Viaggi, CECE Secretary General



Bernd Holz, CECE President



Jean-Louis Marchand, President of FIEC

## ASPHALT PAVEMENTS 2017 CONFERENCE

The Asphalt Pavements 2017 (AV'17) Conference was held in České Budějovice in Czech Republic on 28 and 29 November.

Petr Mondschein, chairman of the Czech Road Society, opened the conference and in his opening words he mentioned that 555 participants attended this conference and exhibition. Egbert Beuving (EAPA) mentioned in his speech the situation regarding the non-citation of the Asphalt Standards in the Official Journal of the European Union (OJEU). The European Commissions will follow the Delegated Act procedure and the publication of the Asphalt Standards in the OJEU is expected end 2018 or beginning / mid 2019. He also spoke about the work of the EAPA Task Group Rejuvenators where significant



Opening session



AV'17

contributions of the Czech Republic side were made and about the recently published EAPA position paper "The ideal project".

In the session "Modern trends in materials and structures, pavement design" Aleksander Zborowski (TPA) spoke about the concept of perpetual asphalt pavements – the next level in the theory of evolution of flexible pavements. In the traditional pavement design we look at the strain level at the bottom of the asphalt structure, so at the strain level at the bottom of the base layer. Normally we put the cheapest layer at the bottom while it is a very important layer for the durability of the pavement. He explained the first trial of building a perpetual pavement in Poland where they used an anti-fatigue layer as base layer in 2014.

Marcin Hering (TPA) presented an innovative triple SMA layer for heavy duty pavements – from idea to realisation. For the heavy duty pavement that was going to be used by slow moving traffic on service roads at a refinery in Gdansk (Poland) they used a highly modified SMA 60 mm anti-fatigue base course layer (SMA 16 PmB 45/80-80), followed by a 90 mm binder course of SMA 22 PmB 25/55-80 and a 50 mm surface course SMA 16 PmB 45/80-80. By using a highly modified asphalt (HiMA) binder in all

layers they built this innovative pavement structure to meet the requirements of durability regarding the mechanical behaviour.

Jean Paul Dupuy (Colas) spoke about asphalt mixtures with foamed bitumen. His message was that we have to decrease the asphalt production temperature and we have to increase the amount of reclaimed asphalt in the mixtures.

In the other sessions testing and performance of materials and pavement structures were addressed as well as European standards, sustainability and smart and safe asphalt pavements.

In his conclusions Petr Mondschein mentioned that most of the topics in 2017 were the same as in 2013 and 2015 but there was a change. As example he mentioned recycling. We still talk about recycling; in the past it was up to 30% and now we are talking about much higher percentages. Now there were quite a lot of papers about low temperature asphalt, where to improve quality and rejuvenators. Also the tests are getting more complicated.

Videos of the opening speeches as well as PowerPoint slides of all the presentations can be found at <http://www.asfaltove-vozovky.cz/en/presentations/>.



Aleksander Zborowski (TPA)



Marcin Hering (TPA)



Triple SMA



Jean Paul Dupuy (Colas)

## 7<sup>TH</sup> NATIONAL TURKISH ASPHALT SYMPOSIUM

On 29 and 30 November 2017 the 7<sup>th</sup> National Asphalt Symposium was held in Ankara, Turkey. EAPA director Carsten Karcher participated in this conference and gave a keynote speech about the European asphalt industry. Other keynotes were given by Prof. Erol Tutumluaran from the USA and Dr. Reha Cetinkaya from Germany.

The conference addressed scientists, researchers, engineers, practitioners, road authorities and decision makers as well as students. It focused on actual hot topics in the field of bituminous road materials and construction.

Some EAPA members presented their companies in the exhibition, amongst those Ingevity, Sasol, CFF and Dupont.

Please find more information (in Turkish language) on <http://www.asfaltsempozumu.org>.



## COLLOQUIUM ASPHALT, BITUMEN AND PAVEMENTS

On 30 November and 1 December 2017 the 16<sup>th</sup> Colloquium Asphalt, Bitumen and Pavements was held in Bled, Slovenia. The Colloquium was attended by 230 professionals of which almost a third was coming from 11 countries outside Slovenia.

The colloquium was opened by Slovenko Henigman, president of ZAS, the Slovenian Asphalt Pavement Association. In his opening speech he explained the situation in the Slovenian asphalt industry at this moment and he mentioned the drastic changes that took place in the last decade.

John Kruse Larsen, president of EAPA, gave an overview of the EAPA activities and highlighted the importance of working together at a European level and at a global level.

In the first session "Basic materials in the asphalt industry – Aggregates, bitumen and additives" presented Anja Sörensen (Eurobitume Germany) the state of art of bitumen testing with DSR (Dynamic-Shear-Rheometer) in Germany. This test method was introduced in Germany in the mid-1990's. Currently four procedures are described in Germany and in wide use. Those are the determination of  $G^*$  and phase angle  $\delta$  by temperature sweep, the Multi Creep and Recovery Test (MSCRT), the determination of equi-stiffness temperature and the determination of phase angle transition temperature for viscosity modified binders.

In the near future DSR testing will be part of the revised bitumen standards for Paving Grade Bitumen (EN 12591) and the PMB standard (EN 14023). Markus Spiegl (OMV) talked about High Polymer Modified Bitumen and mentioned the advantages in the performance of this bitumen.

Michael Wistuba (Technical University of Braunschweig, Germany) presented the Binder-Fast-Characterisation-Test (based on DSR) In German it is called Bitumen-Typisierungs-Schnell-Verfahren (BTSV). This test can replace Softening Point and has several additional advantages and can be used for modified and unmodified bitumen. This test was recently introduced in the German standards. When the shear modulus  $G^*$  reaches a pre-defined value of 15 kPa, the corresponding temperature TBTSV and the phase angle BTsv are obtained. This TBTSV provides information on binder hardness and can be considered a surrogate of the Softening Point Ring & Ball temperature while phase angle BTsv indicates the degree of modification. This test method can also be used to describe the ageing of bitumen and might be able to predict binder ageing. This may be advantageously used for rejuvenating binder from reclaimed asphalt and help in determining the optimal amount of additives (rejuvenator) or virgin binder for blending.

In the second session Egbert Beuving (EAPA) presented the content of the EAPA position paper The Ideal Project.

Harold Versteeg (Rijkswaterstaat, the Netherlands) gave an invited lecture on the Dutch procurement approach for a more sustainable infrastructure.

The four elements of the Dutch procurement approach are:

- Functional specifications
- All decisions are based on Lifecycle Costing and Total costs of Ownership
- Contract specifications (standard in all projects and a project specific set of minimal contract specifications)
- Besides prize, sustainability is an awarding criterion (based on objective comparison). The obligatory tools to be considered are CO<sub>2</sub> ladder and DuBoCalc. Optional: focus on issues identified in the planning phase.

After having explained the Dutch system he presented his wish list for asphalt:

- Decreasing life cycle costs for roads & asphalt
- Decreasing Environmental Cost Indicator (ECI) value for road construction including asphalt (> 90% re-use for all layers, low temperature, ...)



Slovenko Henigman



John Kruse Larsen



Anja Sörensen



Markus Spiegl

- Practical way to include the effect on traffic emissions in ECI calculations
- Continued cooperation with the industry (which is very well organised in the Netherlands) on quality assurance and on developing and validating new technology (in the Rijkswaterstaat Test Centre)
- Interaction with the industry (Ambition and speed of change that is possible & Use of award criteria and the size of the incentives necessary to stimulate change).

He concluded with the advantage of the Dutch approach. With this approach Rijkswaterstaat (the Dutch national road authority) achieved:

- Lower environmental impact
- An optimised design
- lower total costs of ownership
- An incentive to improve and innovate
- Very cost effective & low risk roads for Rijkswaterstaat and their suppliers

On the second day Johan Litzka (Austria) showed the consequences of neglected pavement maintenance. In Austria they did a study to assess the effect of postponing maintenance on later maintenance needs. A clear relation was found between the duration of the do-nothing-period and the additional investments needed to compensate the deterioration of the pavement and the reduction of the asset value that occurred in the meantime. With Life Cycle Costs (LCC) it was shown that timely condition related maintenance has an economic advantage against do-nothing-strategies with subsequent improvements.

Guillaume Bastien (Colas) showed trends and innovations in the public works & civil engineering industry. The road sector is not really innovating. Warm Mix Asphalt and Recycling were introduced a long time ago. The real changes are coming from digitalisation and they are moving forward fast. Digitalisation also brings new competitors. Companies that did not exist 30 years ago (or less) are now world players. In the future we will have mobility providers and the users will have to pay for this mobility. We are seeing innovations every day and we need to adapt. In short: Bastien challenged the road industry to innovate rapidly and he ended with: Welcome to the new world; it is already here.

On the website of ZAS [http://www.zdruzenje-zas.si/kolokvij/en\\_pictures](http://www.zdruzenje-zas.si/kolokvij/en_pictures) and videos of the colloquium can be found (and more in the near future).



Michael Wistuba



Harold Versteeg



Johan Litzka



Guillaume Bastien

## ASPARi SYMPOSIUM

On 6 December 2017 an ASPARi Symposium was held in Harderwijk, the Netherlands.

ASPARi is the acronym of "Asphalt Sector Professionalising, Research & Innovation" and it is a network of organisations that work together to strengthen the professionalism in the asphalt road building industry to improve the asphalt construction process.

Recent contract change developments in the Netherlands (especially lengthier guarantee periods) changed the rules in terms of process control, quality, maintenance and risks to contractors. In response, 11 construction companies (representing about 80% of the turnover) joined forces with researchers of the University of Twente to form the ASPARi network in 2007, to collaboratively work towards improved process control.

More details can be found at: <http://www.aspari.nl/>

The annual Symposium was opened by Seirgei Miller (University of Twente). Trung Nguyen and Florian Witting (BAM/Roelofs) showed how moisture control

en dryer-drum efficiency can reduce energy use and CO<sub>2</sub> emissions after having analysed the whole process.

Karolien Couschier (University of Antwerp) spoke about asphalt (surface) temperature measurements by using infrared scanners in an accurate way. She also addressed the influence of water sprayed on the roller drums.

Peter Perton (BAM) talked about "High reliability paving crews". He created a model to measure the High Reliability Performance Index (HPRI) of a paving crew by looking at 5 main aspects. He tested the model on 3 paving crews and showed that this system results in a better efficiency. The use of this system (where the crews saw their own scores frequently) resulted in an increasing learning curve and also in less irritations, a better team spirit, less repair work, less CO<sub>2</sub> and significant financial savings.

Natascha Poeran (Boskalis) presented the results of their alternative approach of training asphalt crews. They are helping the crews to solve the problems the crews brought on the table themselves, by providing specific types of training.

André Dorée (University of Twente) reported about his trip to Australia and the Aapa Conference in Melbourne and compared the Dutch situation with the situation in other countries. He characterised the Dutch situation as:

- Integrated contracts
- Performance based approach
- The own knowledge / expertise of the companies
- The possibilities to test, experience and innovate
- Cooperation between road authorities and contractors (mutual trust)
- Cooperation between contractors (mutual trust)
- The absence of consultancies as intermediate layer
- The attention for skills, education and training.

Next to these presentations there were also presentations regarding process monitoring, quality plans, GPS filtering, compaction strategies, asphalt logistics, real time process control and asphalt cooling curves.

During the open discussion, moderated by Alex van der Wal (KWS) there was a lively debate. Someone mentioned: The asphalt crews need good tools (meaning modern tools / equipment) because you would not send a carpenter to a job without good tools.

All the PowerPoint presentations shown can be downloaded at: <http://aspari.nl/index.php?page=artikelen-presentaties>.



Seirgei Miller (University of Twente)



Peter Perton (BAM)



Natascha Poeran (Boskalis)



André Dorée (University of Twente)

## INTERESTING WEBSITES

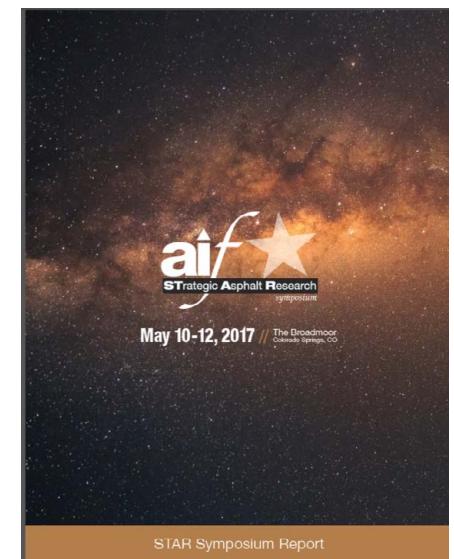
The STAR Symposium Report 2017 can be downloaded as pdf-file for free at the Asphalt Institute Bookstore: <https://bookstore.asphaltinstitute.org/STAR17report>

The Strategic Asphalt Research (STAR) Symposium was the seminal event fostered by the Asphalt Institute Foundation (AIF) Research Committee to fit within the objectives of the AIF – to conduct strategic research and educational activities that are designed to advance and improve the liquid asphalt (bitumen) industry.

This report captures the discussion that occurred at the STAR Symposium and its interactive sessions, that were held on 10 – 12 May 2017 in Colorado Springs, USA, to create a reference from which further conversations and initiatives can be launched. From these first steps, the AIF Research Committee, in conjunction with the AIF board of directors, expects to facilitate the continued discussion and growth of those innovation visions that will drive future strategic research initiatives.

The report addresses:

- A brief history of the Asphalt Institute Foundation
- Economics
- Performance
- Sustainability
- Worker Issues
- Brainstorming Session
- External Input



## UPCOMING CONGRESSES

### GERMAN ASPHALT DAYS IN 2018

From 28 February to 2 March 2018 the 19<sup>th</sup> Deutsche Asphalttage (German Asphalt Days) will be held in Berchtesgaden, Germany. More information can be found on <http://www.deutsche-asphalttage.de/>.



### PPRS CONGRESS 2018

On 26 to 28 March 2018 the PPRS Congress will be held in Nice (France). This International event will be dedicated to the maintenance, modernisation and adaptation of our road networks to the mobility of the future. More information can be found at: [www.pprs2018.com](http://www.pprs2018.com)



PAVEMENT PRESERVATION & RECYCLING SUMMIT

**PPRS**  
**NICE 2018**  
**MARCH 26-28**  
Nice Acropolis - FRANCE

### E&E EVENT 2018

The 1st Eurasphalt & Eurobitume Event will be held on 14 – 15 June 2018 in Berlin, Germany.

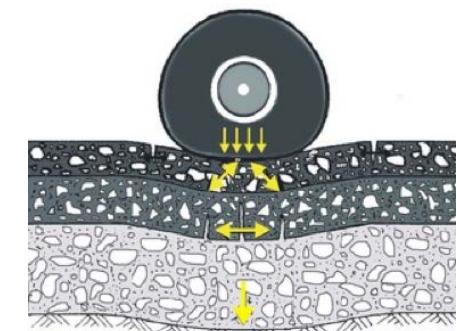
The preliminary programme can be found at: <http://www.eeevent2018.org>



### 7<sup>TH</sup> INTERNATIONAL CONFERENCE "BITUMINOUS MIXTURES AND PAVEMENTS"

The 7<sup>th</sup> International Conference "Bituminous Mixtures and Pavements" (7<sup>th</sup> ICONFBMP) will be held on 12-14 June 2019 in Thessaloniki, Greece.

More information can be found at: <http://iconfbmp.civil.auth.gr/en>



More upcoming conferences can be found at the EAPA website: <http://eapa.org/events.php>

# Asphalt. ADVANTAGES

#AsphaltAdvantages



86  
254

## SAFETY

Asphalt protects the environment  
from hazardous materials

[AsphaltAdvantages.com](http://AsphaltAdvantages.com)

## EAPA AND SOCIAL MEDIA

If you want to receive just in time information  
and pictures about the EAPA activities just follow  
EAPA on twitter: @eapa\_org

Don't forget to get connected to the  
AsphaltAdvantages on twitter: @asphalt\_eu

The screenshot shows the official Twitter account of EAPA (@eapa\_org). It features a profile picture of a highway at night with blurred lights. The bio reads: "EAPA @eapa.org Brüssel, Belgien eapa.org Beigetreten Dezember 2009". The stats are: Tweets 1.158, Folge ich 213, Follower 535, Gefällt mir 755. Below the bio, there's a section for "Tweets & Antworten Medien". A recent tweet from "Asphalt Advantages" (@asphalteu) is shown: "Asphalt's smoother road surface benefits drivers by helping to decrease fuel consumption. How? asphaltadvantages.com/en/advantages/... #AsphaltAdvantages". To the right, there's a sidebar for "Neu bei Twitter?", a "Vielleicht gefällt dir auch" section with user profiles, and a "Weltweit Trends" section.

Furthermore, EAPA provides information on  
Facebook: @eapaoffice.

Join EAPA on social media and never miss any information  
of what is going on in the European Asphalt Industry!

## EVENTS LIST 2018

- |                        |  |
|------------------------|--|
| <b>10 JAN</b>          | Organising Committee E&E Congress 2020 in Madrid     |
| <b>18 JAN</b>          | EAPA TC Group "Future road requirements" in Brussels |
| <b>8 FEB</b>           | Organising Committee E&E Event 2018 in Brussels      |
| <b>13 FEB</b>          | CEN TC227 WG6 meeting in London                      |
| <b>16 FEB</b>          | EAPA TC Task Group Rejuvenators (Conf. call)         |
| <b>21 FEB</b>          | EAPA AP&EM Group meeting in Paris                    |
| <b>28 FEB- 2 MARCH</b> | DAV Asphaltage in Berchtesgaden                      |
| <b>14-15 MARCH</b>     | CEN TC336 WG1 meeting in Delft, the Netherlands      |
| <b>19 MARCH</b>        | Organising Committee E&E Event 2018 in Berlin        |
| <b>26-28 MARCH</b>     | PPRS 2018 in Nice                                    |
| <b>5 APRIL</b>         | International Road Maintenance Day (IRMD)            |
| <b>10 APRIL</b>        | EAPA TC Task Group Rejuvenators in Bonn              |
| <b>11 APRIL</b>        | EAPA HSE Committee meeting in Bonn                   |
| <b>12 APRIL</b>        | EAPA TC meeting in Bonn                              |
| <b>16 APRIL</b>        | Organising Committee E&E Congress 2020 in Brussels   |
| <b>17 APRIL</b>        | EAPA ExCo and Directors' Group meeting in Brussels   |
| <b>18 APRIL</b>        | Joint EAPA – Eurobitume ExCo meeting in Brussels     |
| <b>23-28 APRIL</b>     | Intermat in Paris                                    |
| <b>25-26 APRIL</b>     | CEN TC227 WG1 meeting in Dublin                      |
| <b>3 MAY</b>           | Organising Committee E&E Event 2018 in Brussels      |
| <b>15 MAY</b>          | CEN TC227 Chairmen's Panel Meeting                   |
| <b>16 MAY</b>          | CEN TC336 WG1 TG5 in Brussels                        |
| <b>18 MAY</b>          | Board Foundation Eurasphalt (Conf. call)             |
| <b>29 MAY</b>          | Organising Committee E&E Event (Conf. call)          |

- |                   |   |
|-------------------|---|
| <b>13 JUNE</b>    | EAPA GCA in Berlin                                      |
| <b>14-15 JUNE</b> | E&E Event in Berlin                                     |
| <b>25-26 JUNE</b> | CEN TC227 meeting in Vienna                             |
| <b>9-10 OCT</b>   | TC336 WG1 meeting in Sweden                             |
| <b>23 OCT</b>     | EAPA HSE Committee in Brussels                          |
| <b>24 OCT</b>     | EAPA TC in Brussels                                     |
| <b>25-26 OCT</b>  | CEN TC227 WG1 meeting                                   |
| <b>5-7 NOV</b>    | SMA Conference, Atlanta, Georgia, USA                   |
| <b>8 NOV</b>      | Global asphalt Pavement Alliance, Atlanta, Georgia, USA |
| <b>13-14 NOV</b>  | CEN TC336 in Brussels                                   |
| <b>21-22 NOV</b>  | Joint EAPA ExCo & Directors' Group in Ljubljana         |

## COLOPHON

### TEXT

Egbert Beuving & Carsten Karcher

### LAYOUT

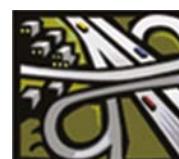
Window Stories

### PICTURES

Egbert Beuving and Carsten Karcher



## MEMBERS

				
Asefma	Asfaltindustrien	ASMUD - Turkish Asphalt Contractors Association	asphalt FÜR ALLE FÄLLE	DAV - Deutscher Asphalt Verband e.V.
				
EBA	Eesti Asfaldiliit	HAPA - Hungarian Asphalt Pavement Association	IAPA - Irish Asphalt Pavement Association	IAPA - Irish Asphalt Pavement Association
				
Infra Contractors' Association	MPA - Mineral Products Association	NCC AB	PEAB	Peab Asphalt AB
				
Sdružení pro výstavbu silnic Praha	USIRF - Routes de France	ZAS	ZAS - Združenje asfalterjev Slovenije	

## ASSOCIATE MEMBERS

			
ABZ-1	Ammann Group	Antigo - MHB Breakers Ltd.	ASTEC
			
BTC Europe GmbH	Caterpillar Paving Products Inc.	CFF	CRH plc.
			
Genan	Honeywell	ICL Performance Products LP	Ingevity
			
Kraton Polymers Nederland B.V.	Marini	Ruthman	Sasol Wax
			
Vialit	Vögele	Volvo Construction Equipment	Turkish Petroleum Refineries Co.

