

Conclusions E&E Congress 2016

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Chairman Organising Committee E&E Congress 2016



6th Eurasphalt & Eurobitume Congress

1-3 June 2016 – Prague Congress Centre

INVESTING IN OUR GREATEST ASSET: ROADS

E&E Congress 2016 in numbers

- 817 Delegates
- 172 Exhibitors (incl. staff)
- 66 Accompanying persons

In total 1077 persons registered for Congress

- Exhibition
 - 58 Exhibitors (Companies & organisations)
 - 1000 m² Exhibition space

➤ 247 accepted Papers

164 Posters

10 Sponsors

Opening session

► **Ismail Ertug, MEP**

We have to use new technologies and
We have to be professional

► **Dan Ťok (Minster Transport CZ)**

Wanted from this congress some new technologies to save
costs and nature

Road owners and road users views

Jean-Francois Corté

- Transportation and mobility are central to sustainable development
- Maintenance of our greatest asset is important
- More cooperation needed between public and private sector to develop balanced contracts

Road owners and road users views

Donna James: For future

- Seek out optimum ways to minimise risk to ALL parties
- Seek a deeper understanding of each others motivation and drivers for mutual benefit
- So contracts that motivate

Thierry Goger: Innovation and Implementation of Innovation



Create in contracts a motivation for innovation

External factors

- ▶ **Fuensanta Martinez Sans**, European Automobile Manufacturers' Association (*ACEA*)

Good roads can reduce fuel consumption.

41.5 billion Euro/year spent on innovation

External factors

Vincent Basuyau, EC: Circular Economy Package

- Big potential for recycling (C&D Waste) and industrial symbiosis (by-products) – **avoid trasphalt**
- MS well advanced, some lagging behind (target 70% by 2020)
- Potential for innovation and investments

- EU Green Public Procurement for Road, Design , Construction and Maintenance – GPP criteria to be used voluntarily by public authorities

External factors

Isabelle Muller: Availability of bitumen in the future

- Energy mix in Europe will change
- Oil demand will decrease
- But bitumen will remain
- Bitumen is one element of solution to the bottom of the barrel issue

What the industry can provide

Bjarne Schmidt - Danish Road Directorate

- Rolling Resistance of surface layers can be reduced by more than 10%, leading to a reduction in fuel consumption of up to 6%
- IRI and MPD important: fine aggregate for surface courses
- Cooperation between industry and road authorities is important to make progress

What the industry can provide

Arian de Bondt, Ooms Civiel

- In PPP-projects **it is possible** to use new technologies which are beneficial for road construction industry, road users and society
- Tenders for motorways should incorporate the maintenance aspect
- Good contracts stimulate innovation:
 - 50 % longer life than traditional porous asphalt (PA)
 - At least 30 % less environmental costs than traditional PA
- If you ask for quality, you will get it

What the industry can provide

Rien Huurman, BAM

- Development of recycling techniques 1980-2015
- Focus is on getting heat in RAP
- Stop down cycling and Respect bitumen
- New technology (to re-use PA as PA):
 - Decompose asphalt in its components
 - Heat and treat (rejuvenate) reclaimed mortar
 - Sieve reclaimed stone
 - Foam the reclaimed mortar
 - Mix it with reclaimed stone @ 105°C

What the industry can provide

Etienne Lebouteiller, IBEF

- How to get advantage of the new technologies
 - Cross fertilisation / Agro industry
 - Data acquisition and processing / Big data
- The bitumen industry landscape is changing
 - Quality and consistency might be an issue
- Reliable materials sourcing
 - Be careful about various materials (asphalt extenders, Re-refined engine oil bottom residues (REOBs))

1st Summary

- Corté: More cooperation needed between public and private sector to develop balanced contracts
- D James: We need contracts that motivate
- Goger: Innovation and Implementation of Innovation
- Schmidt: Cooperation between industry and road authority key
- De Bondt: Tenders for motorways should incorporate the maintenance aspect (durability)

A motivation for innovation is needed in contracts

Recycling – Re-use

- Asphalt industry started recycling / reuse about 40 years ago
- Started with economical reasons
- Now Circular Economy and CO₂ reduction / CO₂ footprint

- Main new topics in the papers:
 - binder ageing / hardening
 - softening / rejuvenation of aged binder (different rejuvenators)
 - high RAP-percentages – we can go up to almost 100%

Recycling - Re-use (2)

- We can produce recycled pavements with high quality, also with high-RA percentages
- Lars Forstén: Binder blends must be calculated
 - Soft bitumen / good rejuvenators
 - Equations, nomograms
- Challenges: More RA in surface courses
 - New techniques – Rien Huurman
- The main advantage of asphalt: 100% recyclable / re-usable

Become an 'Asphalt Advocate' – Communications workshop

- Communication is key for our industry
- Identify target audience and approach them in their language
- New (social) and old media (ALARM Survey) needed
- Support the press and get the press on your side
- We have a great product **“Every journey starts with the road”**
.... and tell it everybody

Mixture Performance and Testing

Ageing – important for durability

- Difference between oxidative ageing (in lab) and road pavement ageing in practice + difference between asphalt pavements types
- Influence of filler, aggregate, bitumen source and bitumen grading on ageing
- Several papers regarding effect of filler (hydrated lime) on asphalt behaviour
- Mastic properties important

Health, Safety & Environment

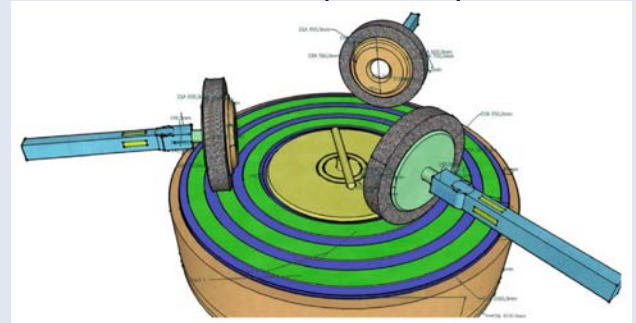
- Noise
- Porous Asphalt:
 - Improved durability (+ 30%) by using suitable polymer modified binder (PMB), good stone aggregate selection and filler type (containing the right proportions of limestone and hydrated lime)
- Porous mastic asphalt:
 - Concept is promising; few problems have to be solved. Noise reduction better than SMA8

Health, Safety & Environment (2)

- Emission:
 - LTA / WMA less emissions than HMA
- Skid resistance
 - Alliance between BAST and the Dutch Rijkswaterstaat (RWS)
- Skid Resistance & Smart Ravelling

Interface Testing Device

- to study friction wheel/pavement
- and ravelling resistance
- Future: optimisation of tyre - pavement interaction

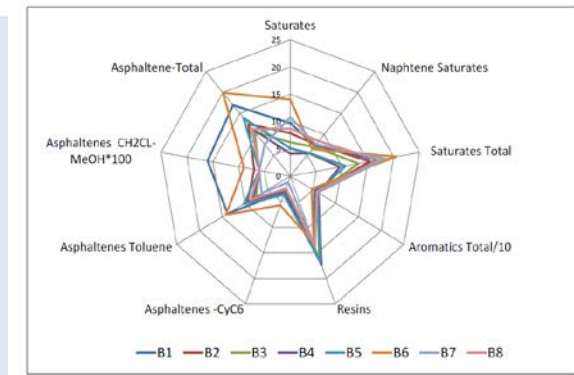


Binder Performance & Testing

- ▶ Innovative binder additives
 - Bio mass (use of vegetable oil, lignin, cashew nut shell oil etc.)
 - Nanotechnology
- ▶ Bitumen quality
- ▶ Bitumen testing
 - Multiple Stress Creep Recovery Test - sensitivity to permanent deformation (precision data)
 - Ageing
 - One paper: Superpave grading system should be considered

► New developments in bitumen testing

- SAR-AD compositions **S**aturates, **A**romatics and **R**esins
- Chemical composition **A**sphaltene **D**eterminator



- Standard EN 12591 appears as insufficient to ensure satisfactory performance of the finished products
 - Good correlations were found with several bitumen viscosity or rheological tests
 - From limited to 2 or 3 fractions, very interesting and significant correlations are obtained to predict fatigue, stiffness modulus...
 - Additional analyses are ongoing to improve or validate these correlations
- SAR-AD analysis was developed by the Western Research Institute

Smart management of road infrastructure – seminar

- Roads connect people, regions and are the backbone of our industry
- Investing in our most social asset: roads

- Roads are so normal they are there, that nobody realises that they also need maintenance.
- Roads do not collapse; they slowly become an unbound road /path

- Managers have to get smarter to understand real road maintenance strategies

Poster session

- 2 Sessions
- Great success

Warm Asphalt Mixtures

- First technologies were introduced 20 years ago
- Presented during E&E Congress in 2000 in Barcelona
- Many technologies available
- E&E 2016: 26 quality papers
- WMA-technologies in combination with Recycled Asphalt (1/3 of the papers)
- We are still evaluating, demonstrating and developing rather than implementing

How to succeed with implementation

- WMA has many advantages
- **The need for a change** must be understood and accepted by key stakeholders and a broad involvement is necessary
- Key customers/purchasers of asphalt products play a very important role – their support is needed
- An incentive is needed to progress (Norway, USA)
- Economic incentives will boost implementation
- WMA / LTA is the future – start leaning now

Maintenance & Rehabilitation

Increasing Pavement Service Life

- Service life extending techniques for PA in the Netherlands gave
- Good results and now standard practice

- Influence of asphalt workmanship on pavement service life
- Premature pavement failures/distresses occur too often
- In Norway in some contracts they require a certificate showing that the workers had a training and passed the exam
- This is in line with new Public Procurement Directive (2014)

Sustainable development

- Environmental Product Declaration (EPD)
- Product Category Rules (PCR) - *a PCR was developed for Asphalt Mixtures in the USA*
- Key end-use customers beginning to be interested in some type of environmental impact (+/-) information
- Asphalt industry must make certain that decisions are made on appropriate data to ensure the best outcome for asphalt users and customers
- It s better to be at the table then to be on the menu

Sustainable development

- Surface layers can be optimised to reduce RR properties of the pavement, but do not forget other relevant characteristics
- Understand how texture and Longitudinal Profile interact with RR
- Software to reduce the environmental impact of road construction and maintenance in Europe to help local authorities to evaluate the environmental impact between different solutions
- Some harmonisation in tools (software) might be useful for implementing Green Public Procurement

Final conclusions

We have the technologies:

- to recycle at every level, up to 95%
- to modify the binders where needed
- To design pavements, to determine CO₂, etc. etc.
- We have the knowledge to educate and train student and workers
- We have high tech equipment with IT technology

We need a good contracting system to implement the technologies we saw here in Prague to build asphalt roads in a sustainable way