Overview Presentation

- European asphalt and bitumen standards
- Environmental items in these standards
- Work Zone Safety
- EAPA Environment Group
- Delivery of high performance pavement systems and products
- Purchasing models
- Health and safety regulations around bitumen and REACH and

EU Asphalt Standards

CEN TC227 WG1
- TG 2 Test Methods
- TG3 Product Standards
- TG 4 Conformity Assessment Standards + RAP

TG2 Test Methods

12697 series
- Soluble Binder Content
- Particle Size Distribution
- Bitumen recovery
- Water sensitivity of bituminous specimens
- Resistance against studded tyres
- Wheel tracking test
- Resistance to fatigue
- Stiffness
- Resistance to fuel

Visit EAPA head quarters
- Binders specification harmonisation,
- Health and safety regulations around bitumen, REACH and purchasing models,
- Delivery of high performance pavement systems and products
**TG2 TEST METHODS**

Several Test methods in 5-year review process
New standards (being developed)
- 45 : Saturation Ageing Tensile Stiffness (SATS) Conditioning Test
- 46 : Low temperature cracking and properties
- 47 : Determination of the ash content of natural asphalts
- 48 : Bond strength
- 49 : Friction After Polishing
- 50 "Scuffing resistance" the ARTe test method was chosen based on blind testing, but ...

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**TG 3 PRODUCT STANDARDS**

Product standards in 5-year Review Process
Bituminous mixtures - Material specifications
- 13108- Part 1: Asphalt concrete
- 13108- Part 2: Asphalt concrete for very thin layers
- 13108- Part 3: Soft asphalt
- 13108- Part 4: Hot rolled asphalt
- 13108- Part 5: Stone mastic asphalt
- 13108- Part 6: Mastic asphalt
- 13108- Part 7: Porous asphalt
- 13108- Part 8: Recycled asphalt
- 13108- Part 9: Asphalt for Ultra Thin Layers

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**TG 3 PRODUCT STANDARDS**

In April 2011 it was decided to work only on the 'normal approach' for the next generation of product standards, where the options for the two approaches ('open' and 'prescriptive') are available within one standard, such that individual countries can choose which criteria they wish to adopt.

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**TG 3 PRODUCT STANDARDS**

So for Asphalt Concrete
- the 'prescriptive' (Empirical-approach) and
- the 'open' (Performance-approach) will be merged.

For Porous Asphalt and SMA some "performance requirements" will be added to the existing standard.
A line (in careful wording) will be added to avoid over specification.

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**TG 4 CONFORMITY ASSESSMENT STANDARDS**

EN 13108-8 RAP
EN 13108-20 Type Testing
EN 13108-21 FPC

- In 5 Year Review Process

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**CHALLENGES**

- A condition procedure to age asphalt samples
- Specifications for cold mixtures:
  - emulsion mixtures
  - foam mixtures
- Conditioning procedures for (Foamed) Warm Mixes
- Test methods for Warm and half Warm Mixes
EU Bitumen Standards

- CEN TC336
- CEN TC336 WG1

CEN TC336

- Bitumen grades
  - Paving grade bitumens
  - Special paving grade bitumens
  - Multi-grade EN 13924-2
  - Cationic bituminous emulsions
  - Cut-back & Fluxed bituminous binders
  - Guided bitumens
  - Hard grade asphalt binders

Bitumen Standards

- EN 12591 “Specifications for paving grade bitumen”
- EN 13924 “Specifications for hard paving grade bitumens”
- EN 13924-2 “Multi-grades”
- EN 14023 “Specifications for PMB”
- EN 13808 “Framework for specifying cationic bituminous emulsions”
- EN 15322 “Framework for specifying cut-back and fluxed bituminous binders”
- EN 13808 “Bituminous Emulsions”

Paving Grade

Table 18 — Paving grade bitumen specifications for grades from 255 ≤ 0.1 mm to 630 ≤ 0.1 mm penetration — Properties applying to all paving grade bitumens listed in this table.

Table 19 — Paving grade bitumen specifications for grades from 255 ≤ 0.1 mm to 300 ≤ 0.1 mm penetration — Properties associated with regulatory or other regional requirements.
### Multi grade - draft

#### Table 1 — Specifications for multigrade bituminous binders: properties applying to all multigrade paving grade bituminous

<table>
<thead>
<tr>
<th>Property</th>
<th>Test method</th>
<th>Unit</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetration at 25°C</td>
<td>EN 1426</td>
<td>0.1 mm</td>
<td>Class 1</td>
</tr>
<tr>
<td>Softening point</td>
<td>EN 1427</td>
<td>°C</td>
<td>Class 1</td>
</tr>
<tr>
<td>Resistance to weathering at 90°C</td>
<td>EN 12607-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual penetration</td>
<td>EN 1426</td>
<td>%</td>
<td>Class 2</td>
</tr>
<tr>
<td>Increase in softening point</td>
<td>EN 1427</td>
<td>°C</td>
<td>Class 2</td>
</tr>
<tr>
<td>Change in mass</td>
<td></td>
<td>%</td>
<td>Class 2</td>
</tr>
<tr>
<td>Penetration Index, p&lt;sub&gt;P&lt;/sub&gt;</td>
<td>Annex A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>EN ISO 2092</td>
<td>°C</td>
<td>Class 2</td>
</tr>
</tbody>
</table>

#### Table 2 — Specifications for multigrade paving grade bituminous: properties associated with regulatory or other regional requirements

<table>
<thead>
<tr>
<th>Property</th>
<th>Test method</th>
<th>Unit</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic draining point</td>
<td>EN 12603</td>
<td>°C</td>
<td>Class 1</td>
</tr>
<tr>
<td>Plastic draining point</td>
<td>EN 12603</td>
<td>°C</td>
<td>Class 2</td>
</tr>
<tr>
<td>Penetration at 25°C</td>
<td>EN 12603</td>
<td>0.1 mm</td>
<td>Class 1</td>
</tr>
<tr>
<td>Softening point</td>
<td>EN 1427</td>
<td>°C</td>
<td>Class 1</td>
</tr>
<tr>
<td>Residual penetration</td>
<td>EN 1426</td>
<td>%</td>
<td>Class 2</td>
</tr>
<tr>
<td>Increase in softening point</td>
<td>EN 1427</td>
<td>°C</td>
<td>Class 2</td>
</tr>
</tbody>
</table>

**Problems / challenges**

- Adhesion
- Constancy / consistency of quality (ITT)
- Long Term Ageing
• PRS for complex binders

• PRS process will be without “field validation”
• “Move forward and fill the current gaps”
• Simple binders described by EN 12591, and complex binders by future PRS
• CEN Data Collection to be incorporated
• The new PRS: a separate standard or something linked to each current bitumen standard?

• Which test for which property?
  • TG1 – High Service Temperatures
  • TG2 – Low Service Temperatures
  • TG3 – Ageing-conditioning

TG1 HIGH SERVICE TEMP

<table>
<thead>
<tr>
<th>Rutting - Method</th>
<th>Suggestion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSR O'Hehir(delta)</td>
<td>Yes/no</td>
<td>Non-relevant for addressing only linear zone</td>
</tr>
<tr>
<td>DSR MSOR test</td>
<td></td>
<td>Relevant for addressing also non linear zone</td>
</tr>
<tr>
<td>DSR LSV EVT1</td>
<td></td>
<td>Not suitable for high mod PMSs</td>
</tr>
<tr>
<td>DSR TSR at 50°C creep mode</td>
<td></td>
<td>Not suitable for high mod PMSs</td>
</tr>
<tr>
<td>stiffness at service temp</td>
<td>Suggestion</td>
<td>Comments</td>
</tr>
<tr>
<td>DSR Complex mod</td>
<td>To clarify temp &amp; freq</td>
<td></td>
</tr>
</tbody>
</table>

TG2 LOW SERVICE TEMP / CRACKING

<table>
<thead>
<tr>
<th>Method</th>
<th>Suggestion</th>
<th>Comments (1 different properties)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBR</td>
<td>Yes/no</td>
<td>Not the most suitable for continuous network PMBs, stiffness at low temp</td>
</tr>
<tr>
<td>Fatigue toughness</td>
<td></td>
<td>In use for RNN (crack propagation)</td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td>Not the suitable for continuous network PMBs, crack formation</td>
</tr>
</tbody>
</table>

TG3 AGEING-CONDITIONING

<table>
<thead>
<tr>
<th>Method</th>
<th>Suggestion for reference method</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTFOT</td>
<td>Yes</td>
<td>Short term</td>
</tr>
<tr>
<td>PAU</td>
<td>yes</td>
<td>Long term</td>
</tr>
<tr>
<td>RCA/R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified RTFOT</td>
<td>?</td>
<td>Short/long/both</td>
</tr>
<tr>
<td>Modified RTFOT</td>
<td>?</td>
<td>short</td>
</tr>
</tbody>
</table>
OTHER REQUIREMENTS

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>Suggestion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing-handling</td>
<td>Viscosity</td>
<td>Yes/No</td>
<td>available</td>
</tr>
<tr>
<td></td>
<td>EN 12699</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage stability</td>
<td>EN 13399</td>
<td></td>
<td>available</td>
</tr>
<tr>
<td>Safety</td>
<td>EN ISO 2992</td>
<td></td>
<td>available</td>
</tr>
<tr>
<td></td>
<td>Cleveland</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRS FORMAT

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 12591</td>
<td>EN 12591</td>
<td>Yes</td>
</tr>
<tr>
<td>EN 13924-1</td>
<td>EN 13924-1 including empirical and PRS</td>
<td>Avoid overspecification</td>
</tr>
<tr>
<td>EN 13924-2</td>
<td>EN 13924-2 including empirical and PRS</td>
<td></td>
</tr>
<tr>
<td>EN 14623</td>
<td>EN 14623 including empirical and PRS</td>
<td>New Standard</td>
</tr>
</tbody>
</table>

Challenges

- Takes a lot of time
- Moving forward (very slowly)
- Good test methods are needed

Environmental issues

CEN TC351
- Release of dangerous substances to air and groundwater

CEN TC358 Sustainability of construction works
- Environmental product declarations - Core rules for the product category of construction products: EN 15804

Work Zone Safety

- ERF and CEN TC226
- CEDR
- EAPA

WORK ZONE SAFETY

ERF Working Group

OBJECTIVES

Raise the safety level for road workers and road users dealing with work zones on public roads by contributing to European guidelines for use of road equipment in work zones
ERF WZS Working Group

WORK ITEMS

- produce an overview and synthesis of national guidelines, legislations and practices in selected European countries
- detect and transfer good practices
- identify improvements adapted to the state of the art
- propose uniform approach throughout Europe

ERF WZS - CEN TC226

DELRIVERABLES

- format of a TR – Technical report
- “Technical info not included in a standard”

CEN TC226 Resolution:

Group with o.a. ERF to prepare for the next plenary meeting in June 2013, a proposal on a draft guide(s) for safe work zones for the products covered by CEN/TC 226.

CEDR

Description of Research Needs (DoRN) May 2012

CEDR TRANSNATIONAL ROAD RESEARCH PROGRAMME Call 2012

Safety:
- Safety of road workers and interaction with road users
- Use of vehicle restraint systems

EAPA

The task of the EAPA Task Group is to:
- provide member states with good examples of raising awareness of the safety of the road workers
- create a document that can be used by the EAPA members to start their own campaign at company level or at national level
- create a document that can be used as a lobbying tool for EAPA at European level.
- collect data to show how big the problem is (data of fatalities caused by general public).

Examples

- In the Netherlands about 2% of the total number of people killed in traffic accidents are in Work Zones.
- In the USA it is also around 2% (2010: 1.75%; 2009: 2.00% and 2008: 1.91%)
- In Europe 50,000 people killed in accidents would result in an estimate of: 1,000 per year.
- In Europe-27 countries in 2009: 34,550.
- 2% would be: about 700 in Work Zones.

DATA
EAPA Environment Group

Work plan 2012-2014

Sustainability

- Warm Mix Asphalt
- Recycling
- Carbon Footprint
- Energy Reduction
- Rolling Resistance
- EU ETS
- Waste Framework Directive
- Green Public Procurement

Stimulating use of WMA
EAPA TC is leading
Following the EU developments

EAPA will translate Norwegian EPD as an example / template

EPD

- Example of Environmental Product Declaration as developed in Norway was presented and explained
- Each asphalt producer can produce its own EPD and he can show the environmental advantages of his product.
- In the future this EPD will play a role in tendering, but not yet (in Norway).
- The EPD produced in Norway is following the European Standard (EN 15804 of CEN TC350).
- EAPA will translate Norwegian EPD as an example / template
• Update asPECT (UK - for free). Adding maintenance
• Update SEVE (Système d’Evaluation des Variantes Environnementales) (France – not free / fee). v2.0
• Need revision of the LCI of 2000 discussed
• Germany UK France have national data, so for them there is no update needed.
• No LCI updated need but: Guidance document “Carbon Footprint Calculators”
  – How to calculate - input data - use – tips and tricks
• Goal to have it ready in 2013.

• EU Emission Trade System
• ≥ 35 MW: in EU-ETS
• > 20 - < 35 depends on member state
• update regarding EU-ETS by Simon van der Byl
• In the UK it is often a plant by plant decision.
• Some mentioned that it might be good to be in the exemption group. It was also mentioned that the quota trade is complex and more like a nightmare
• It is impossible to say what is the right decision.

• Roar Telle explained the Warm Mix Asphalt studies they did on 11 test sections in Norway in 2011
• USIRF WMA Recommendation

• Adapting road system to climate change is primary task of the road owners.
• Good drainage, sewerage systems and ditches along the road are important to keep the road structure dry.
• Norway is using adhesion promoters in every project
• The EAPA members are ready.
• We have the techniques and knowledge to adapt to the climate change consequences.

• Update
• European Platform for Recycled Aggregates – EPRA
• Mostly regulated at national level
• We keep it in the agenda

• Update TC 154 TG13 / CEN TC227 WG6
• Release of Regulated Dangerous Substances (CEN TC 351)
• We get Mandate: ± 2015
• EPD (CEN TC350): ± 2018
ROLLING RESISTANCE

- At a certain moment a response is needed regarding this document
- EAPA needs a plan and a budget
- Next meeting

OTHERS

- Delivery of high performance pavement systems and products
- Purchasing models

PHILIPPE DEWEZ

- Health and safety regulations around bitumen
- REACH