

RECYCLING OF ASPHALT

Environmental and sustainability issues

Dr. Martin Hugener

Road Engineering / Sealing Components

EMPA Dübendorf

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No problems?

If recycling material is coming from old roads, how can this material cause problems in a new road?

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.. some problems

- knowledge on dangerous substances has changed:
polycyclic aromatic hydrocarbons (PAH) in tar, asbestos

⇒ environmental laws and regulations have changed

- dangerous substances have been added illegally:
PCB, waste oil,
- in pavements substances are immobilized - during recycling they can be “reactivated”

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Sources of emissions

Recycling steps

Milling, demolishing

Storage, processing

Paving

Type of emissions

- dust, leaching
- dust, leaching
- hot: fume
- cold: leaching

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Recycling of tar-containing asphalt

Background

- large amounts of tar have been used in Switzerland
- pavement layers contain between 0 and 100% tar
- tar contains large amounts of toxic PAH (Polycyclic Aromatic Hydrocarbons)
- >90% of RAP is recycled hot

Question

- concerning occupational health, which is the maximum tar content for hot recycling

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Fume-Generator

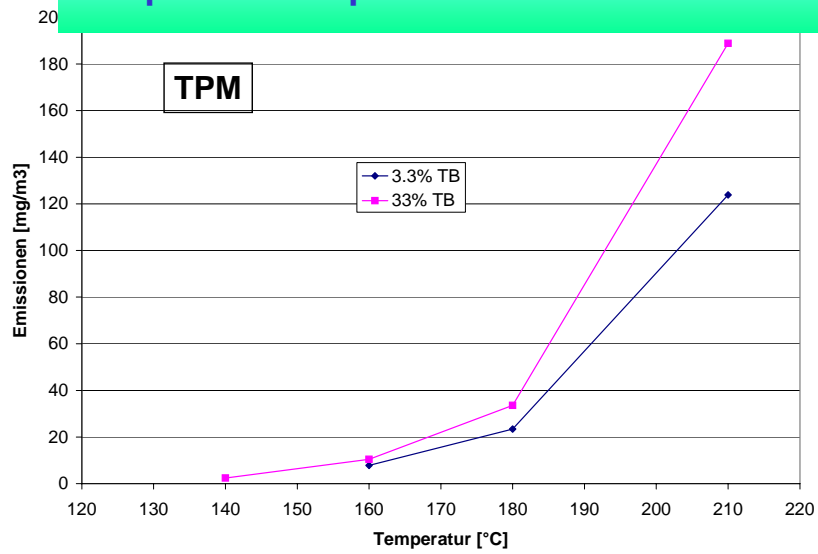


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Temperature dependence of fume emission



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Main source of emissions



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Regulations

- **Money** is the most effective regulator
 - Standards and laws are necessary
 - Regulations and limit values are very different in Europe
- "Waste-tourism"

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Open questions

- is the harmonization of limit values sensible?
- can we avoid (or limit) the testing on harmful substances?
- what to do with contaminated RAP?
- how to improve the negative image of recycling materials (waste in EU)?
- Recycling products with CE-marking?
- How to avoid the "contamination" of asphalt with new harmful compounds?

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Where is the knowledge?

- Jan van der Zwan, Ministry of Transport, NL
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