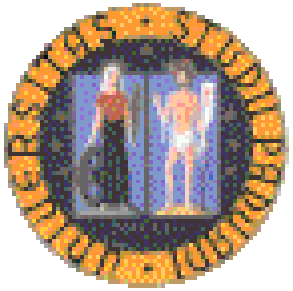
International Workshop
ASPHALT RECYCLING AND MATERIALS RE-USE
IN ASPHALT PAVEMENTS
Identification of open questions and research needs

RE-USE OF BOTTOM ASH IN ROAD CONSTRUCTION: ENVIRONMENTAL AND MECHANICAL CRITICAL POINTS



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Incineration of municipal solid waste

↓

Bottom ash
(Si, Fe, Ca, Al, Na, K oxides)

↓

Potential road construction material

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Municipal Solid Waste Incinerator Bottom Ash in Asphalt concretes for base layers

- ✓ Mechanical & Physical suitability:

  The reuse of the bottom ash as substitute of the coarse aggregate is feasible. (Integration with fine natural aggregate in order to avoid excessive bitumen absorption).

- ✓ Environmental suitability:

  Critical, depending on the interpretation of the reference standard.

Municipal Solid Waste Incinerator Bottom Ash in Asphalt concretes for base layers

UNI EN 12457-2:2004

Leaching – Compliance test for leaching of *granular* waste materials and sludges

One stage batch test at a liquid to solid ratio of 10 l/kg for materials with *particle size below 4 mm* (without or with size reduction)

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Municipal Solid Waste Incinerator Bottom Ash in Asphalt concretes for base layers

OPEN QUESTION:

- **The leaching test should be done on compacted laboratory samples, or this verification should be conducted on grains of asphalt concretes?**

Municipal Solid Waste Incinerator Bottom Ash in Cement bound mixtures for road foundations

- ✓ Mechanical & Physical suitability:

  The reuse of the bottom ash as integral substitute of the natural aggregate *appears* to be feasible.

  Development of small bubbles.

- ✓ Environmental suitability:

  Still under investigation.

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Municipal Solid Waste Incinerator Bottom Ash in Cement bound mixtures for road foundations

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Municipal Solid Waste Incinerator Bottom Ash in Cement bound mixtures for road foundations

OPEN QUESTION:

- **How is it possible to obtain an accelerated stabilization of the bottom ash?**

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