

Road Pavement Recycling: Need for New Approach

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The problem

- Variety of road pavement recycling methods
- Empirical experience
- Performance based methods for asphalt pavements design and choice of materials
- Need for the same approach in pavement recycling

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Variety of road pavement recycling methods

- Asphalt pavement
 - Hot
 - Warm
 - Cold
 - In place
 - In plant
- Cement concrete pavements
 - Crack & Seat
 - Rubblizing



Variety of asphalt pavement recycling

- Hot or cold
- In place or in plant
- Additives:
 - Bitumen
 - Emulsion
 - Foam bitumen
 - Cement
 - Aggregate



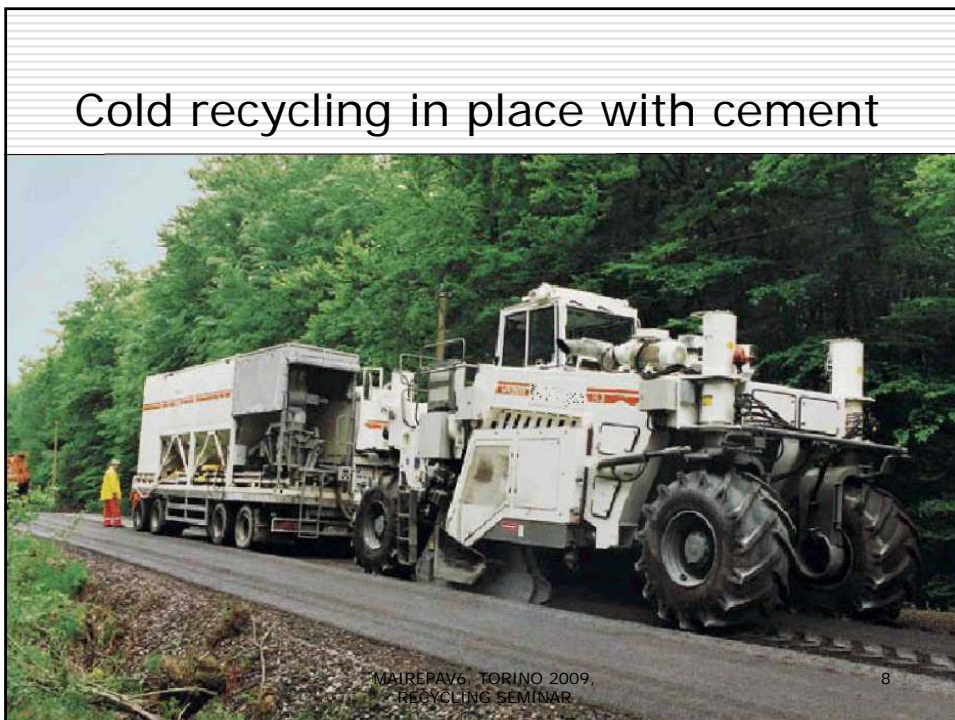


Hot recycling in plant



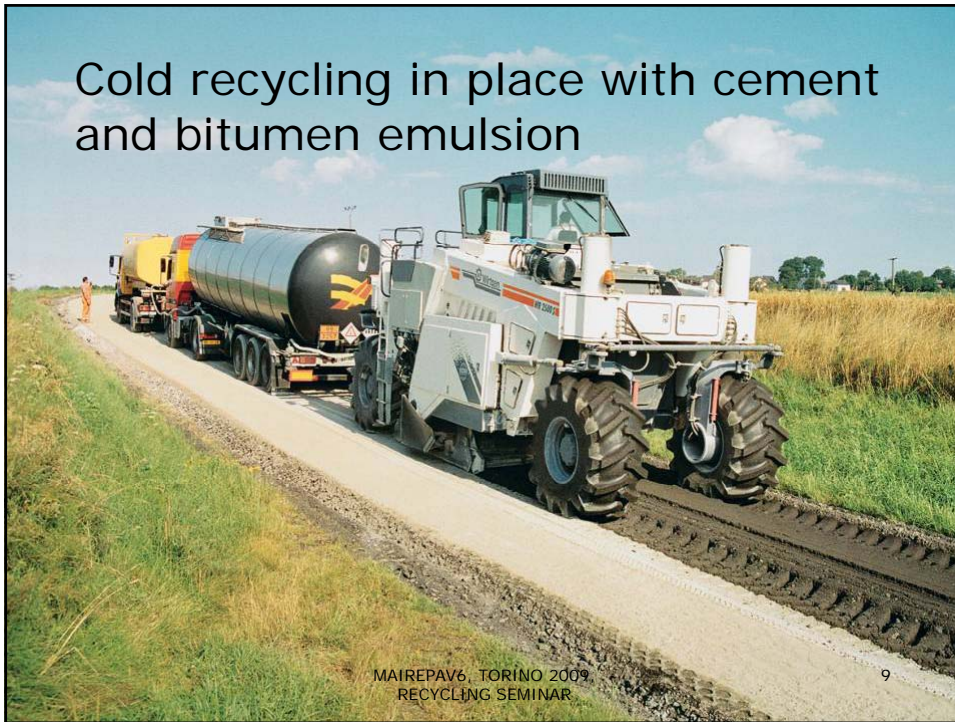
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Cold recycling in place with cement



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Cold recycling in place with cement and bitumen emulsion



Cold recycling in place with foam bitumen



Variety of cement concrete pavement recycling

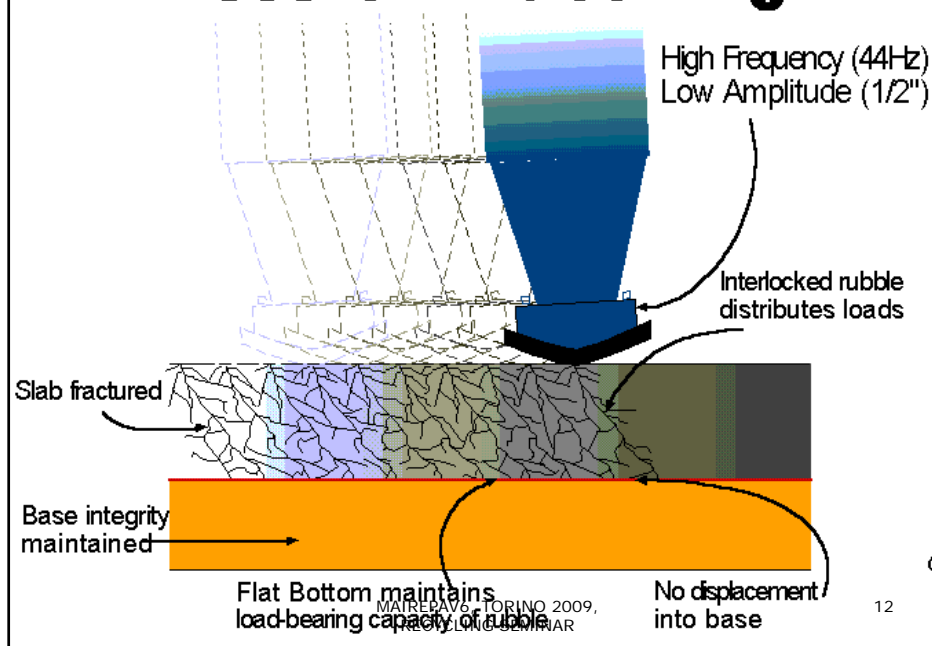
- ❑ Crack & Seat
- ❑ Rubblization
- ❑ New asphalt pavement on top
- ❑ New cement concrete pavement

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Resonant Rubblizing



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Figure 2



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Multihead
hammer

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Need for design of material and pavement

- Performance-based (related) properties
 - Stiffness
 - Fatigue characteristics
 - Permanent deformation resistance
 - Water resistance
 - Cracking resistance
- Opportunity for Long Life pavement design



Need for design of material

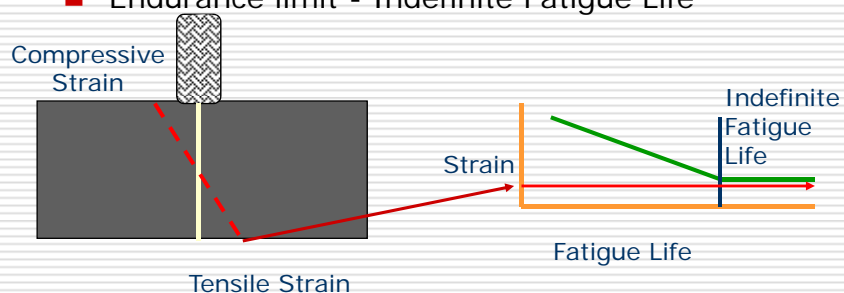
- EN 13108
 - Asphalt concrete mix design
 - Empirical
 - Performance based
- Do we use the chance in case of recycled asphalt?



Need for pavement design

□ Long Life Pavement concept

- Stiffer asphalt base of longer fatigue life
- Lower strain – longer pavement fatigue life
- Endurance limit - Indefinite Fatigue Life



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Thank you for your attention



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