100% HOT MIX ASPHALT RECYCLING
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HOW TO PRODUCE 100% RECYCLED ASPHALT
The objective of this research was to critically investigate the concept of 100% hot-mix asphalt recycling, including WHY do we need to produce such mixtures and HOW to ensure that the properties are similar to conventional asphalt. These two questions are summarized in two columns of this poster.

In depth results from the doctorate research can be found at: http://zaumanis.com.

MIX DESIGN
The main issues for high RA mix design are:
- Excessive fines content in milled RA
- Binder aging: must be compensated using rejuvenators
- Un-homogeneous RA
- Determining effective binder content
- «Can not be done» mindset
- RA management is critical
- Unclear definition of «rejuvenation»

LAB PERFORMANCE
Six rejuvenators at 12% dose were blended in 100% RA mixture. All mixes have equal binder content and aggregate gradation.

100% RA IN NEW YORK CITY
Since 2015 100% recycling has been allowed in NYC streets as an alternative to conventional pavement

WHY PRODUCE 100% RECYCLED ASPHALT
See video: https://youtu.be/y-rYvdGiEbY

EMISSIONS

CONCLUSIONS
- Organic rejuvenators require smaller dose compared to petroleum rejuvenators to cause similar softening effect on aged RAP binder.
- All rejuvenated mixtures had high rutting resistance as demonstrated by Hamburg wheel tracking test. At the same time low temperature cracking susceptibility was reduced by most rejuvenators at optimum dose.
- As a result to good performance, NYC has allowed paving of 100% RA mixtures in city streets.