

Use of reclaimed Asphalt with Emulison

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28 – 29 November 2023, České Budějovice

Motto: Let's asphalt out of the crisis

AV '23 CONFERENCE ASPHALT PAVEMENTS 2023

Content of Presentation

- **Introduction**
- **mode of operation**
- **Binder technology/quality**
- **experience and field trials**
- **summery**

Introduction / initial situation



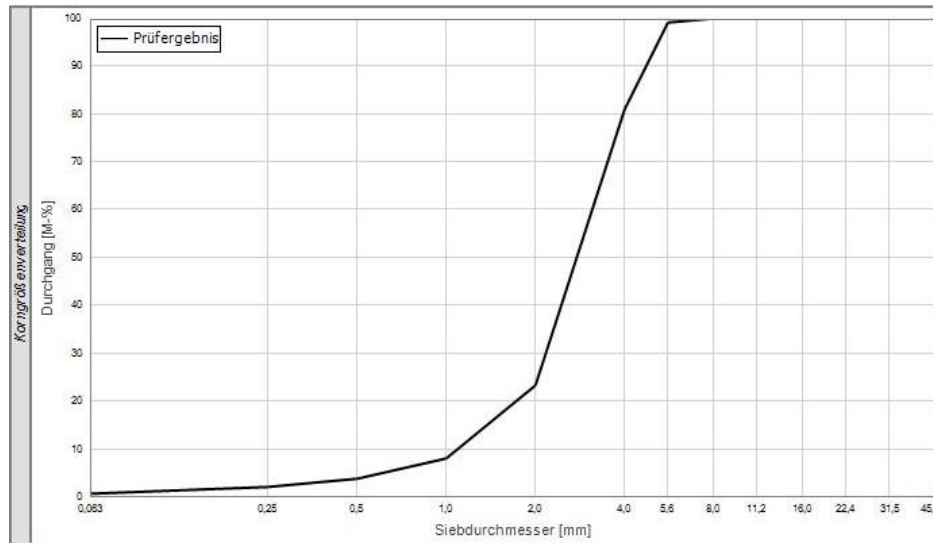
Roads with cracks, deformation and substantial loss

Introduction / initial situation

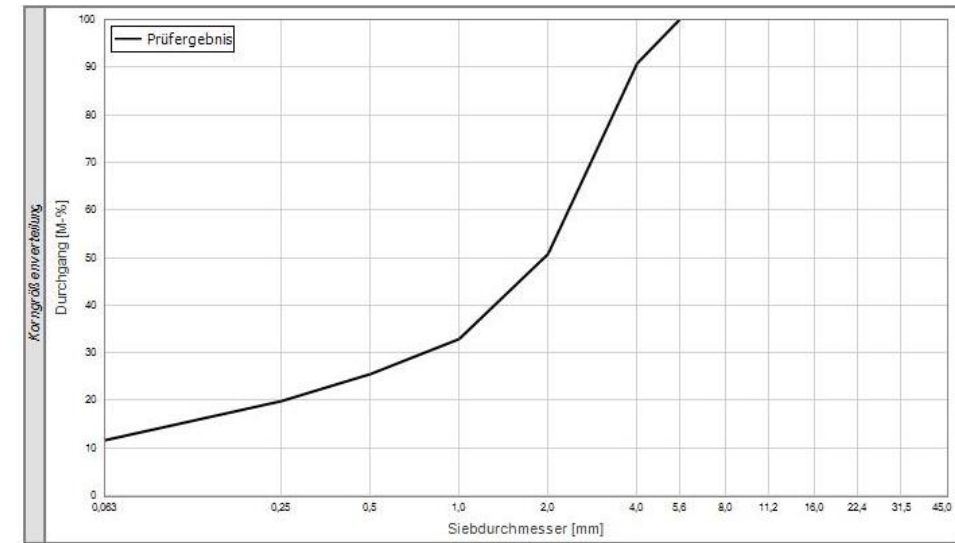


Production of reclaimed Asphalt

Reclaimed Asphalt granulated material



Particle size distribution



grain size after extraction

Reclaimed Asphalt granulated material



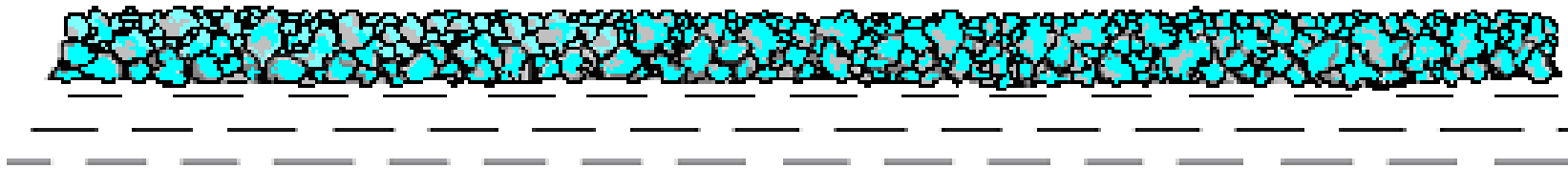
**Stockpile on site of granulated
material
Particle size grading 0/6**

Mode of operation

Requirements to the RA granulate in Austria

- ➔ UA quality according to ÖNORM S2127
- ➔ PAH content dry < 25 mg/kg
- ➔ Phenol content in the eluate < 0,1mg/l
- ➔ Binder content of RA material 4,5 – 5,5%
- ➔ No organic impurities
- ➔ No residual building materials like bricks, concrete or similar

Mode of operation



**Using reclaimed Asphalt in the profile layer with
a consumption of 20 – 25kg/m²**

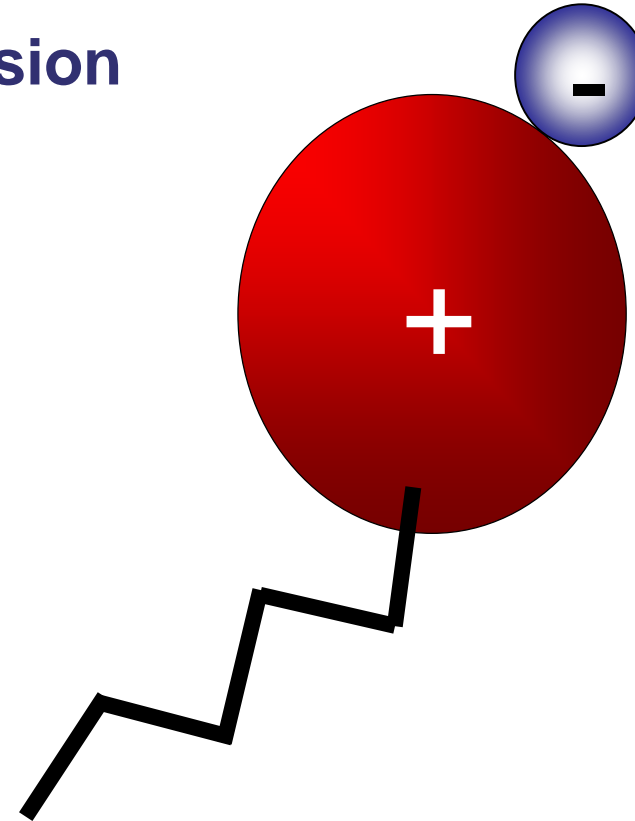
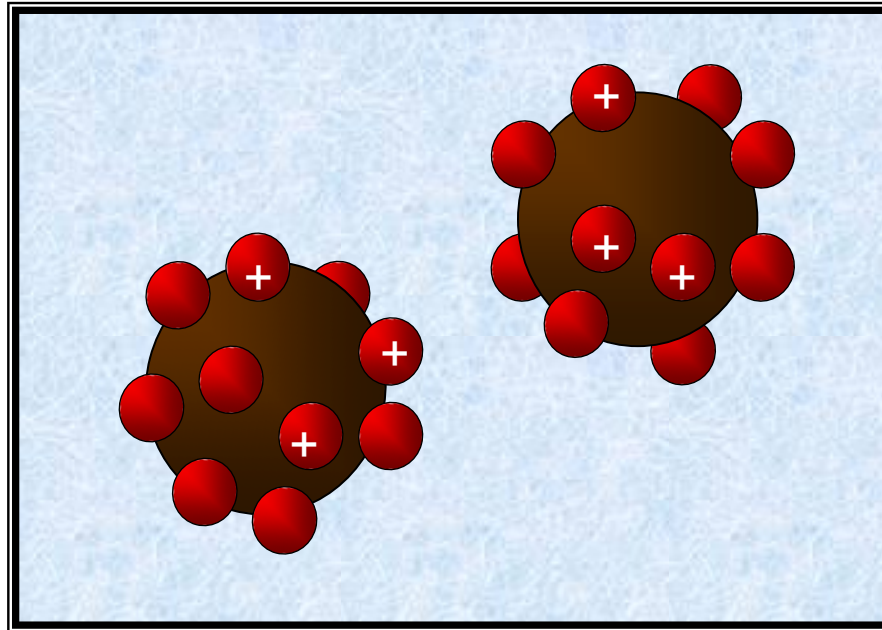
Mode of operation



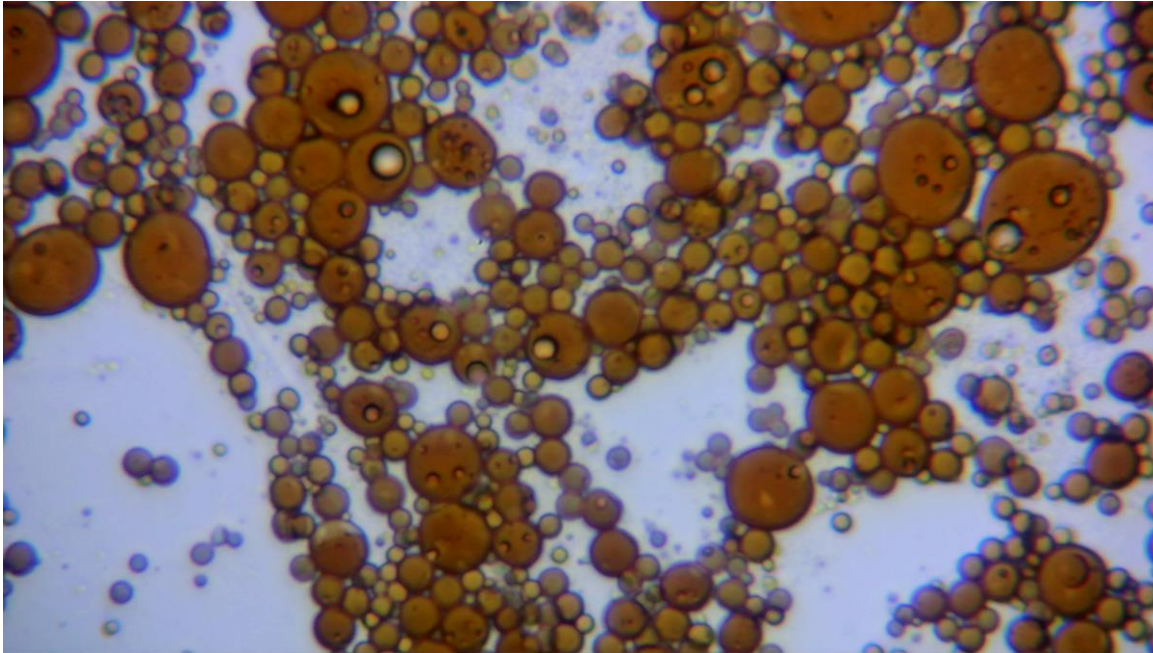
Using reclaimed Asphalt in the profile layer with a consumption of 20 – 25kg/m²

Binder technology

Principal of a cationic Bitumen Emulsion



Binder technology



Bitumen Emulsion C 65 BP 6-DSK

Binder technology

Bitumen Emulsion, technical data

Bitumen Emulsion	Value	EN Standard
Binder content	63 – 67 [%]	ÖNORM EN 1428
Dynamic Viscosity 40°C	20 – 300 [mPa.s]	ÖNORM EN 13302
Sieving residue 0,5-mm	< 0,5 [%]	ÖNORM EN 1429
Adhesion	> 90 [%]	ÖNORM EN 13614

Binder technology

Recovered Binder from Emulsion, technical data

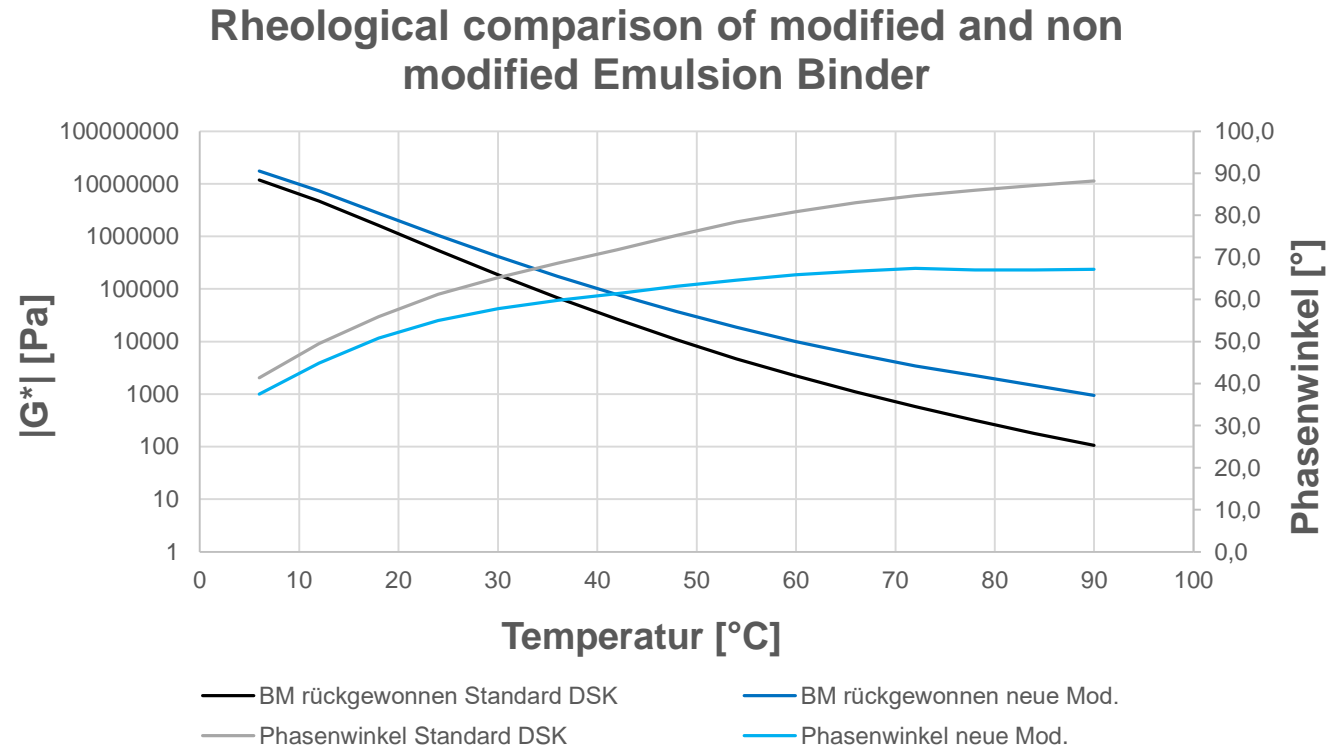
Recovered Binder	Value	EN Standard
Softening point	≥ 35 [°C]	ÖNORM EN 1427
Softening point after aging	≤ 70 [°C]	ÖNORM EN 13074-1,2
Cohesion Pendulum	≥ 7 [J/cm ²]	ÖNORM EN 13588
Elastic recovery	≥ 50 [%]	ÖNORM EN 13398

Binder technology

Modification of the Emulsion with fibre in the wearing course



Binder technology



Recovered Bitumen from Emulsion

Field trial Austria 2023



Field trial Austria 2023



Field trial Austria



2019



2023

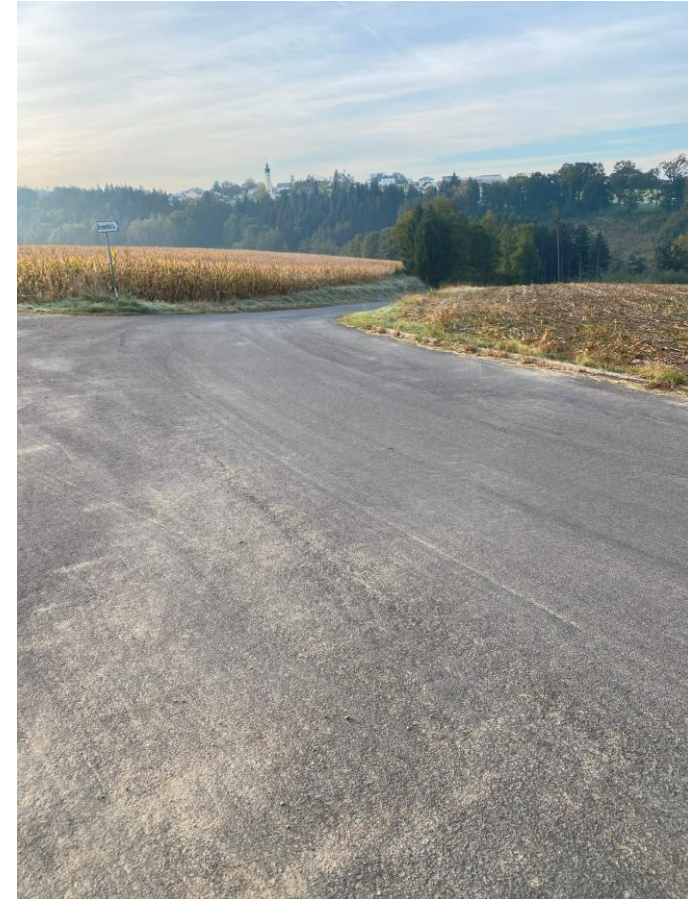
Field trial Rom 2022



Field trial Austria, 2022

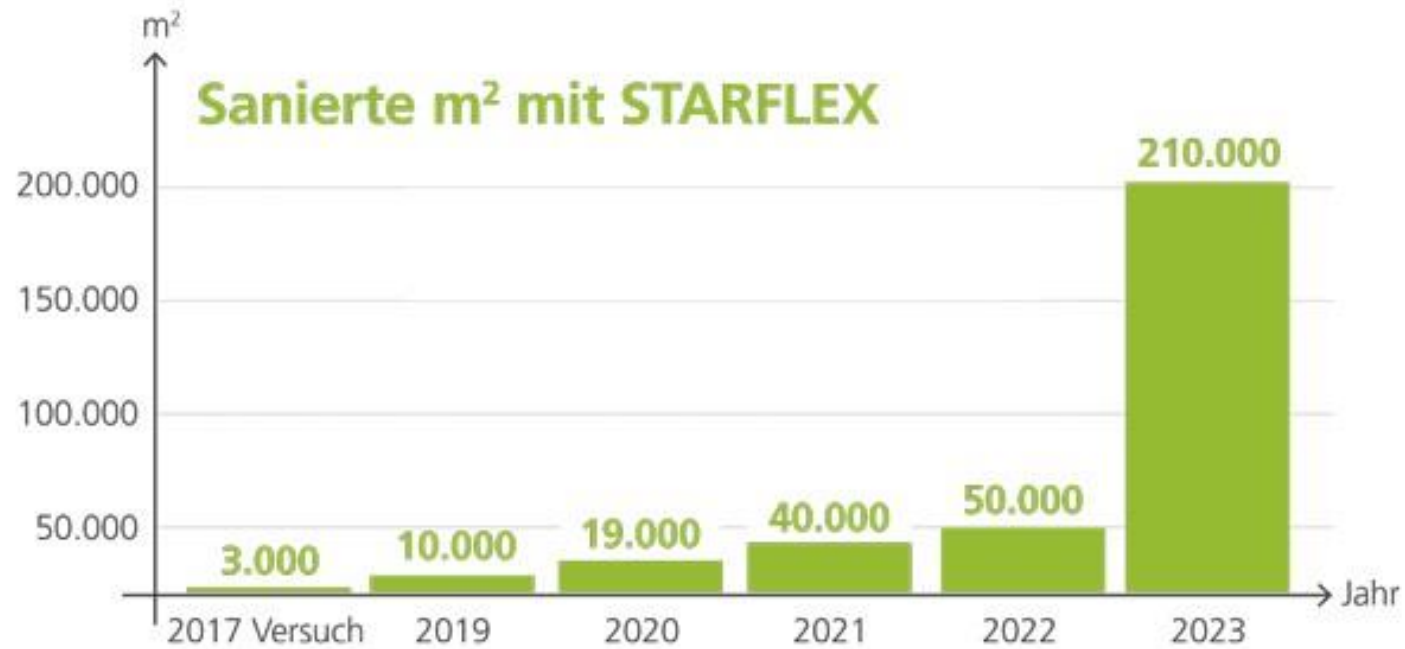


2022



2023

Summery



Summery

Advanteges by using RA in DSK

- ➔ Stabilisation of roads with cracks and deformation
- ➔ Crack bridging with the „Flex-hard“ binder system
- ➔ Low material usage compared to hot Asphalt technology (50%)
- ➔ Saving of raw materials
- ➔ Low CO2 Footprint
- ➔ Contribution to circular economy



Thank you for your attention

**Looking forward in a good future
for Asphalt roads**

