Rediset™ WMX

The New Warm Mix Technology with enhanced asphalt properties
Agenda

• Why use Rediset™WMX warm mix additive
• Working Environment
• Compaction
• Adhesion
• Bitumen properties
• Working with Rediset
• Conclusions
Why use Rediset™ WMX?

- Makes the Asphalt Pavements more durable
- Improved working conditions
- Reduced energy cost
- Reduced emissions
- Excellent Adhesion Promoter
- Limited effect on the binder properties
- No modification of the mixing plant
- No reduction of production capacity
- Easy to use
Less emission of fumes and pollutions

Reduced temperature of the Asphalt mixture with > 30°C
Reduced fuel consumption up to 2.5 ltr per ton of asphalt mixture
Emission of CO₂ is reduced with 35% per ton of mixture

Standard Mix

Warm Mix with Rediset™WMX
Less emission of fumes and pollutions

Working environment is drastically improved around the paver
Hand work is still possible with Rediset warm mix

Standard mix

Beijing DOT

Warm-Mix with Rediset WMX™

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Oil dust particles above the screed

OIL DUST PARTICLES mg/m³

A  PMB MODIFIED BITUMEN
B  PMB MODIFIED BITUMEN TREATED WITH REDISET™ WMX AT 30°C LOWER TEMP.
C  TRESHOLD LIMIT
DUST PARTICLES ABOVE THE SCREED mg/m³

A  PMB MODIFIED BITUMEN
B  PMB MODIFIED BITUMEN
TREATED WITH REDISET™
WMX AT 30°C LOWER TEMP.
Compaction of Warm Mix

Compaction is an important factor to achieve expected service life of the asphalt pavement.

Rediset™WMX will give:

– Prolonged time for compaction
– Works as Compaction aid (less over passes to reach desired density)
– Longer haulage of mixture
– Extends paving season

PEAB, Sweden
Compaction of Warm Mix

Desired density achieved with 35% less overpasses when using Rediset™ WMX

Durban, South Africa
Texas Trial – Field densities

Comparison with other “WMA” techniques
They are not the same!

2% Rediset™ WMX

<table>
<thead>
<tr>
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<th>Density %</th>
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<tbody>
<tr>
<td>Control 295-280F</td>
<td>91.5</td>
</tr>
<tr>
<td>T1 225-150F (1.5 lbs/Ton)</td>
<td>90</td>
</tr>
<tr>
<td>T2 225-140F (5 lbs/Ton)</td>
<td>89.5</td>
</tr>
<tr>
<td>T3 220-140F (5 lbs/Ton)</td>
<td>89</td>
</tr>
<tr>
<td>Rediset 225-140F (2 lbs/Ton)</td>
<td>91</td>
</tr>
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Why is adhesion important?

Good Adhesion

- Durability
- Wider aggregate selection
- Risk of remaining moisture in warm mix
- Reduced maintenance cost
- Less traffic interruptions

Bad Adhesion
Hamburg Wheel Tracking Test

Test results with Hamburg Wheel Tracking Test under water
Test temperature at 50°C
Penetration 70/100 pen bitumen
Penetration of PMB bitumen

![Graph showing the penetration of PMB bitumen]
Working with Rediset™WMX

- The process is exactly the same as with normal hot mix.
- Rediset™WMX is added into the bitumen or into the mixer.
- Dosage is 1-2% of the bitumen content
- It does not affect the production capacity of the plant.
- The aggregate temperature can be reduced with >30°C
- Reduce fuel consumption
- Reduced emissions of GHG

Texas, USA
What does Rediset™ WMX achieve

Summery:

- Reduced temperature of the Asphalt Mixture by > 30°C.
- Reduced heating costs. Savings up to 2,5 liter/ton of mix.
- Up to 35% decreased of CO₂ emissions per ton of mix.
- Considerable reduction of dust and fumes during production and paving.
- Improved working conditions at the asphalt plant and paving site.
- Improves adhesion properties, thus making it possible to use a wider range of aggregates.
- Works as a compaction aid i.e. less over passes to achieve desired density.
What does Rediset™ WMX achieve

**Summery:**

- Reduced binder ageing
- Limited effect on the binder properties
- Extends the paving season
- No compromise on the capacity of the hot mix plant
- Longer workability of the mix
- Improves quality of thin surfacing
- Makes it possible to pave asphalt in more remote places which need longer transportation
- Makes night working easier at lower air temperatures
Rediset™ WMX

The Modern Additive!!

Thank you for your attention!

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