

LISBOA 2010 16th World Meeting

MAY 25/28



Sharing the road
16th World Meeting
International Road Federation



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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 $> 30^{\circ}\text{C}$
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™**

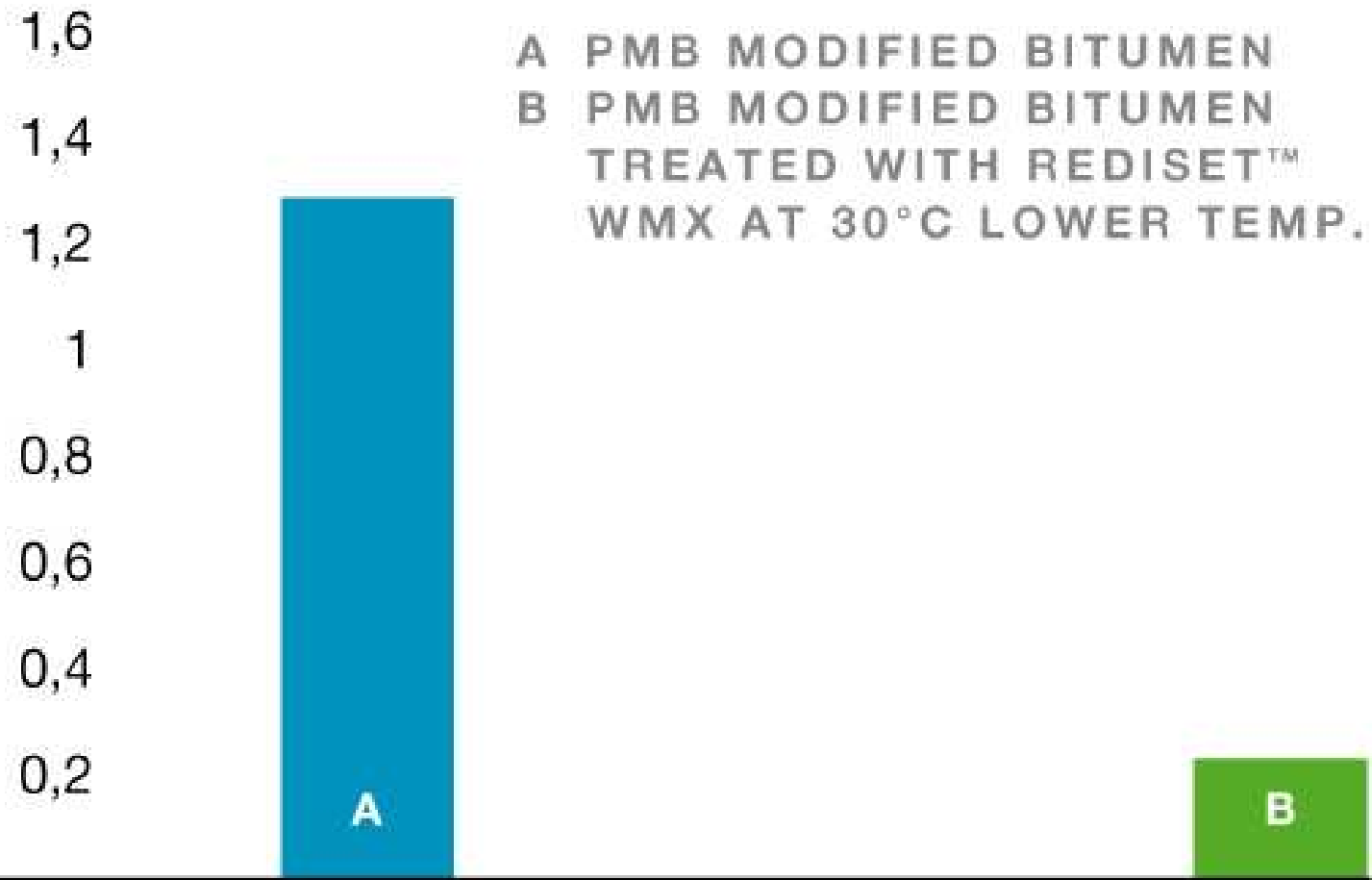
Oil dust particles above the screed

OIL DUST PARTICLES mg/m³



Dust Particles

DUST PARTICLES ABOVE THE SCREED mg/m^3



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



Compaction of Warm Mix

Durban, South Africa

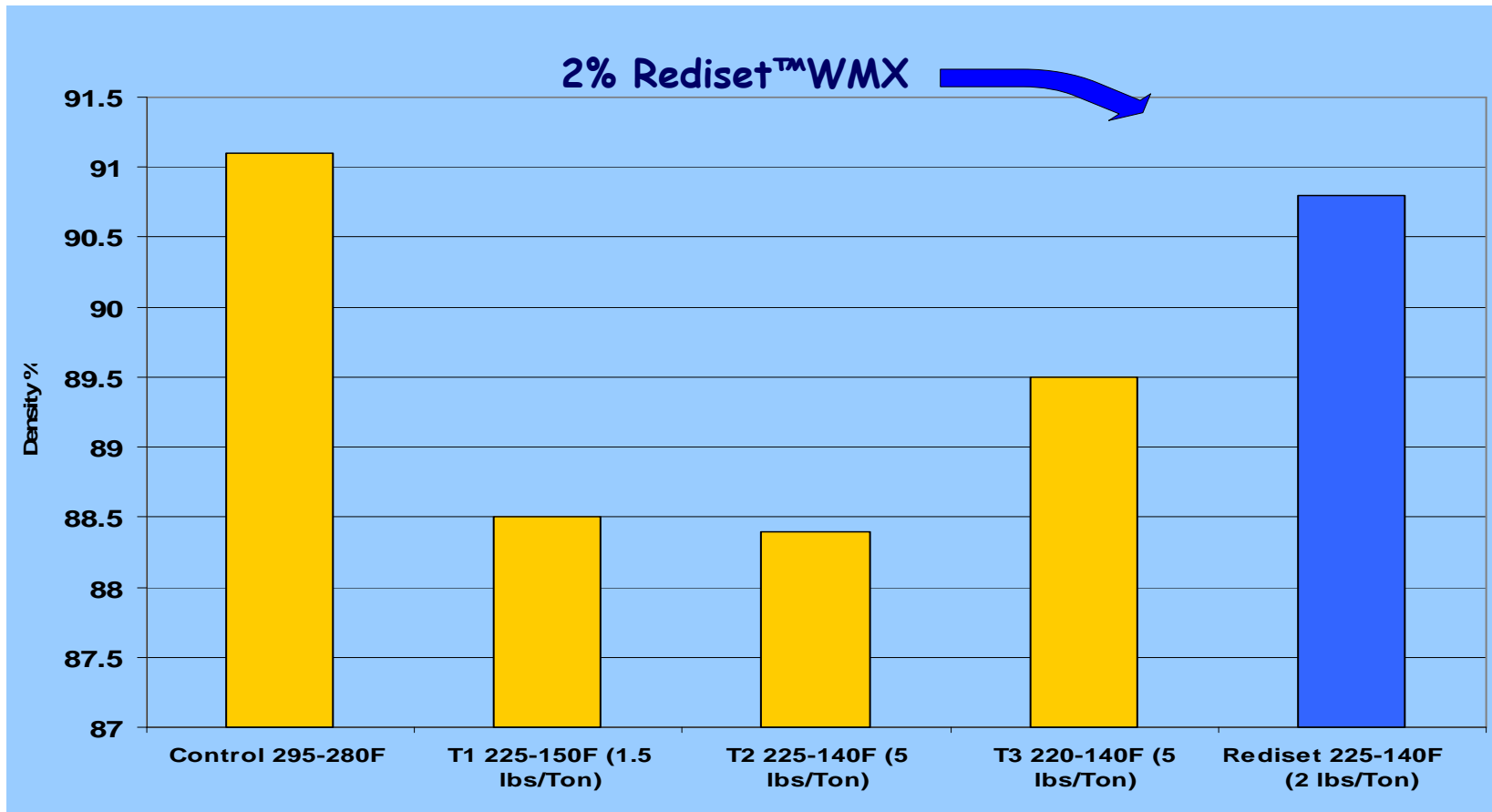
Desired density achieved with
35% less overpasses when
using Rediset™ WMX





Texas Trial – Field densities

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



Why is adhesion important?



Good Adhesion



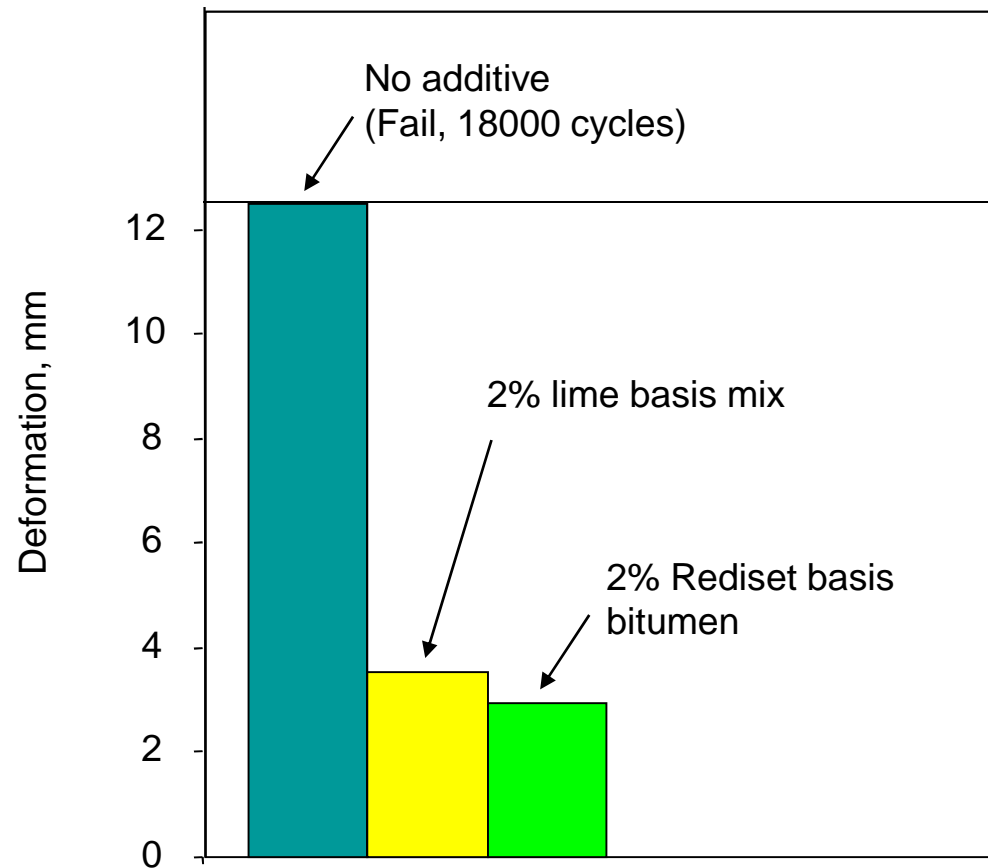
Bad Adhesion

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



Hamburg Wheel Tracking Test

Test results with Hamburg Wheel Tracking Test under water
Test temperature at 50°C

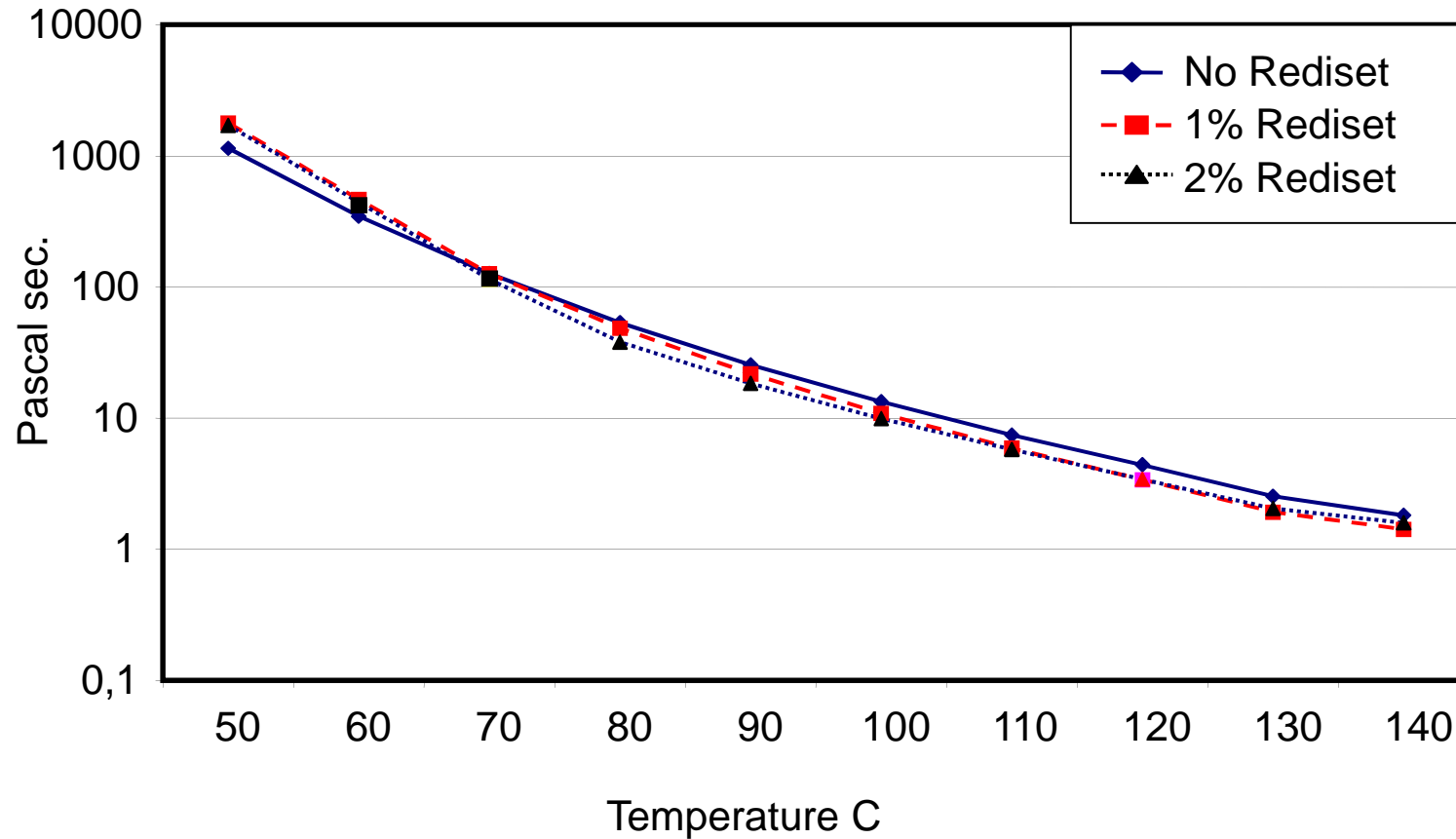




Sharing the road

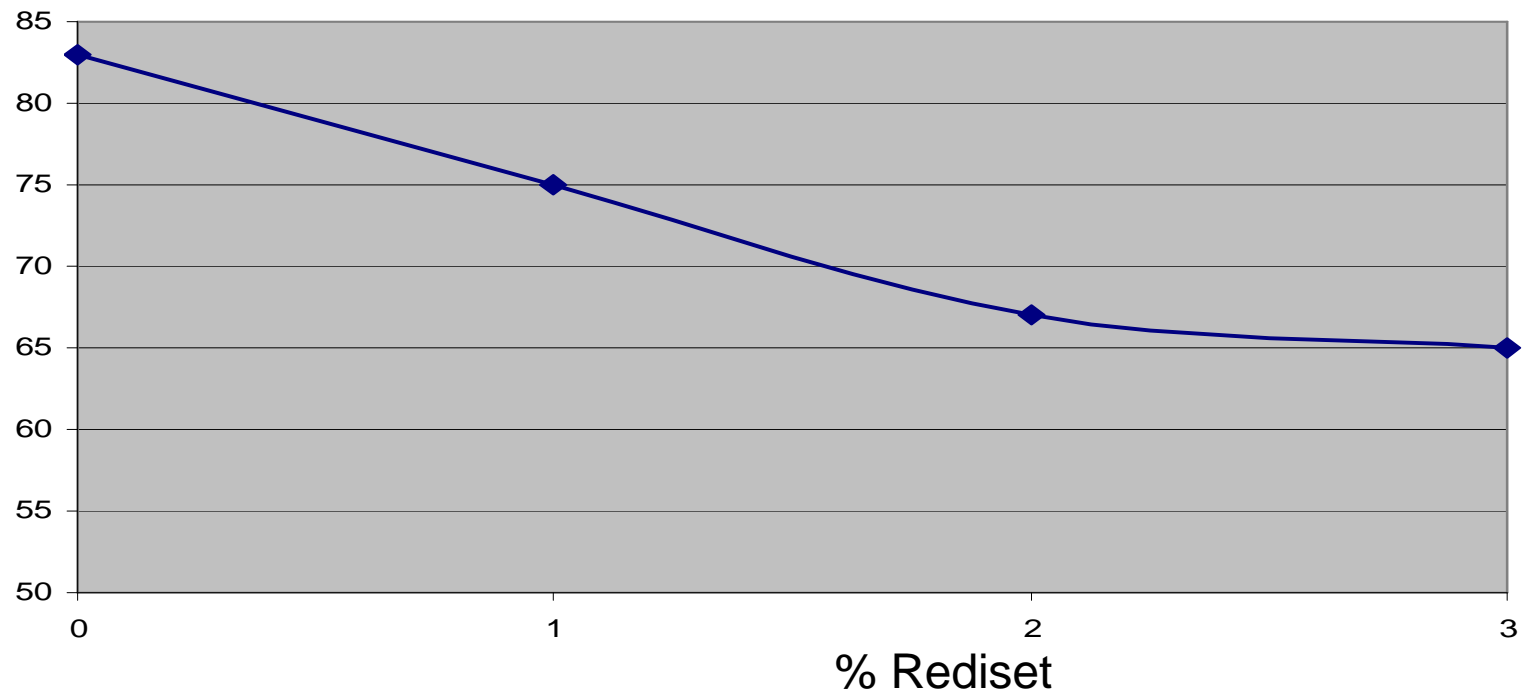
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Bitumen Viscosity

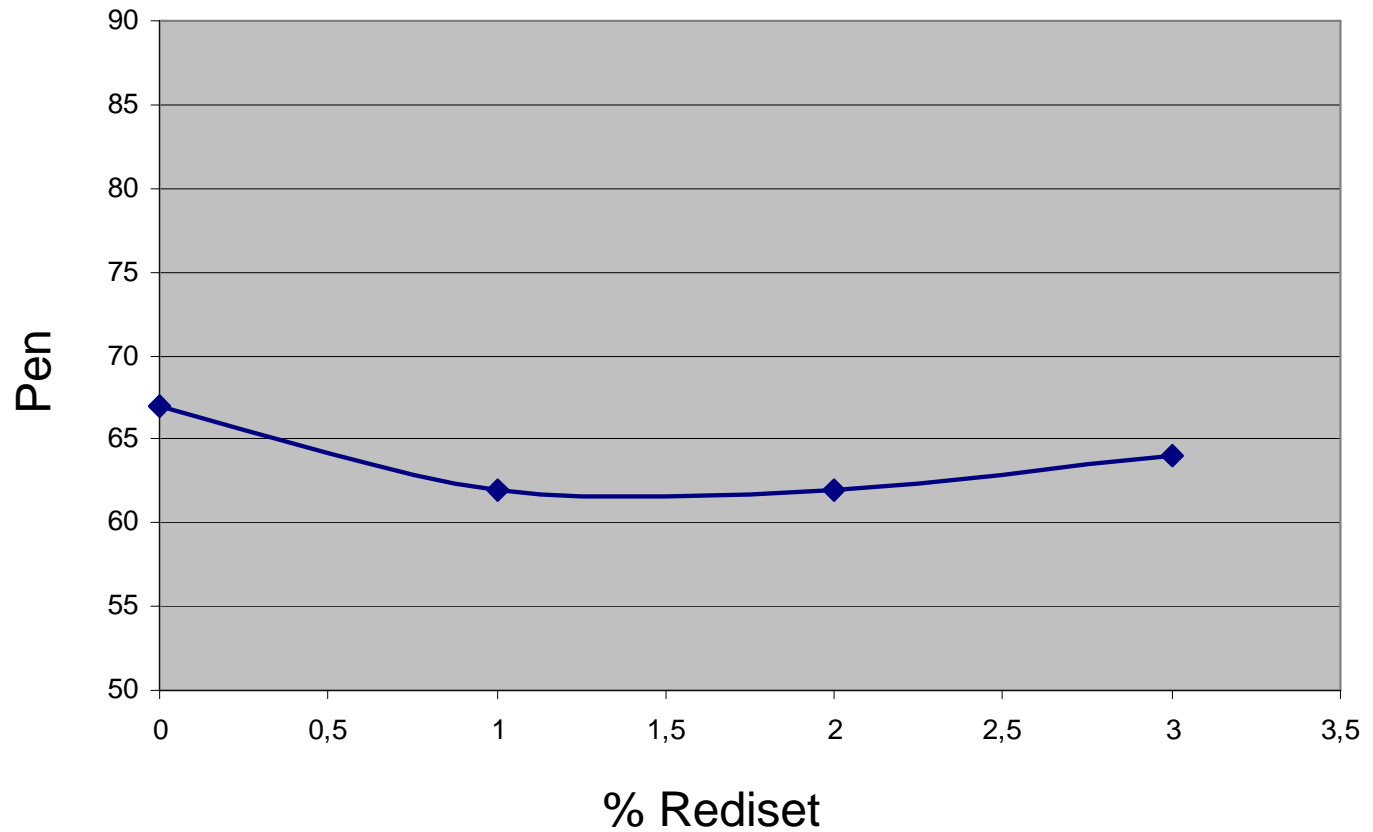




Penetration 70/100 pen bitumen



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 effect the production capacity of the plant.
- The aggregate temperature can be reduced with $>30^{\circ}\text{C}$
- Reduce fuel consumption
- Reduced emissions of GHG



Rediset™WMX





What does Rediset™ WMX achieve

Summary:

- Reduced temperature of the Asphalt Mixture by $> 30^{\circ}\text{C}$.
- Reduced heating costs. Savings up to 2,5 liter/ton of mix.
- Up to 35% decreased of CO_2 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

Summary:

- 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!**

www.surfactants.akzonobel.com/asphalt

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