



Performance
Sampling
Polymer Agglomeration
Construction



Performance
Sampling
Polymer Agglomeration
Construction





Strengths

Open-graded mixes
Temperature susceptibility
Rutting resistance
Fatigue cracking
Water susceptibility
Low temperature cracking



Comparative performance studies
Agglomeration
Raveling
Slippage (tensile strength)
Construction

Polymer Agglomeration



Polymer Agglomeration







Slippage Failure



Troubleshooting



Outline

Performance issues
Sampling
Polymer Agglomeration
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Location

Method

Quality of Sample



Asphalt Binder Sampling Location

Refinery
Rail Car
Terminal
Transfer Truck
Contractors Storage Tank
Feed Line from Storage Tank to Drum or Pug mill



Asphalt Binder Sampling Location



Outline

Performance issues
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Short-Term Storage

Up to 1 Week
"Green for a Couple of Days"
300-350°F
Agitation Suggested
Circulation Required



Proper Agitation and Circulation

Separation without it

Tank Stirrer



Long-Term Storage

Up to 3⁺ Weeks









Approximately 3⁺ Weeks

Add Approximately 1% SBS
 Extend Life Approximately 1 Week

SBS, SBR, EVA etc. Storage Lives



Over 3+ Weeks

Neat Asphalt <> <50°F or No Heat</p>

Polymer Modified Asphalt
 No Heat
 Thermal Degradation of Polymer
 Polymer Agglomeration (Vulcanization)

Outline

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Construction Issues

Stiffer Mixtures
 Temperatures
 Compactability
 Joints
 Handwork

Maintain & Retain Temperature

Proper Truck Loading

Proper Clean Out
Release Agents - No Diesel
Multiple Drops



Transportation

Right Haul Unit for Job
Loading and Unloading
Retaining Mix Temperature
Tarp Loads
Minimize Hauls/Standby Time



Dumping of Trucks

Segregation Calibrate Windrow Size to Laydown Demand Under Filling Hopper

Over Filling Hopper



Proper Dumping

Lapping Loads Uniformity End-of-Load Segregation Minimize Temperature Segregation



Pickup Machine

Proper Consistent Delivery to Pickup Machine Setup Thorough Pickup Drop Height



Laydown

Stiffer Mixtures
Conventional Techniques with Care
Cool Weather Compaction
Temperature Segregation
Tender Zone



Cool Weather Compaction

Time to Achieve Compaction
HMA Stiffness
Environmental Conditions
Haul Time
Size and Amount of Compaction Equipment
HMA Production Temperature
DON'T Over Do It!





Non-Uniform Density



MAT USING BLAW-KNOX MC-30



Compaction of Tender (Superpave) Mixtures

Approximate Density Measurement	91% - 92% of M.T.D.	92% - 92.5% of M.T.D.	94% - 97% of M.T.D.
		TENDER ZONE	
Temperature	300°F - 285°F	240°F - 200°F	170°F - 150°F
Zones	(149°C -141°C)	(116°C - 93°C)	(77°C -150°C)
Distance	200 feet	200 feet	150 feet
	(61m)	(61m)	(46m)







