



PG and Viscosity of Rejuvenated Recycled Binder

As a true rejuvenator, Delta S returns the binder in recycled asphalt to its original functionality by reversing the natural oxidation process that causes pavement to become brittle. The binder softens for workability and then stiffens for durability and an undiminished lifespan.

Performance Grading Results

Binder	Continuous Grade		Performance Grade	
	High Grade	Low Grade	High Grade	Low Grade
64-28 (Control)	68.08	-30	64	-28
58-28	60.63	-33.91	58	-28
RAP only	82.01	-21.79	82	-16
58-28 + 50% RAP	71.81	-26.7	70	-22
58-28 + 50% RAP w/Delta S	65.1	-32.87	64	-28

- Results of performance grading tests prove that the addition of Delta S to recycled binder rejuvenates the material. In rigorous testing, 50% RAP with 8% Delta S dosing by weight of recycled binder was used. The addition of Delta S to the 50:50 binder mix returned the cumulative binder the virgin binder performance standards.

Viscosity Results

	Binder	RAP/RAS	Rejuvenator	Average Viscosity cP @ 135°C	Average Viscosity cP @ 135°C
No RAP/RAS	PG64-28	None	None	574.5	158.2
	PG58-28			322.0	94.5
	PG58-28		Delta S @ 3.85%	197.0	66.5
5% RAS	PG64-28	None	None	574.5	158.2
	PG58-28			614.0	155.4
	PG58-28	RAS	Delta S @ 8%	527.0	141.4
50% RAP + 5% RAS	PG64-28	None	None	574.5	158.2
	PG58-28			1622.0	348.5
	PG58-28	RAP & RAS	Delta S @ 8%	947.0	217.6

- At low concentrations, Delta S is a very effective softener and WMA allowing for paving at lower temperatures which can save energy and extend the paving season.
- Delta S effectively penetrates into RAP and RAS to rejuvenate and soften the binder. By successfully rejuvenating RAP and RAS binder, increased amounts of RAP and RAS can be used in pavement without negatively affecting the final product.
- Even with very high quantities of RAP and RAS, low concentrations of Delta S effectively rejuvenates and softens the binder producing a very workable material.

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