Elastiko®
Engineered Crumb Rubber Technology
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INTERSTATE 35 PAVING PROJECT: LIBERTY, MO

In 2017, The Missouri DOT began an evaluation of Elastiko^{R} ECR (Engineered Crumb Rubber) as an alternative to terminal blend rubber or polymer modification of asphalt binders. Their evaluation included lab testing of modified binders and mixes, followed by mainline paving on I-35 near Liberty, MO.

MODOT commissioned a comparison between a SBS polymer-modified binder and the same mix design with base binder modified with Elastiko^{R} ECR. Two slightly different ECR mix designs outperformed a two-grade bump polymer-modified control mix when both cracking and rutting were considered.

		Control		GTR Results (2 Trials)			
Test	**Criteria**	Result	Pass/Fail	Trial 1	Pass/Fail	Trial 2	Pass/Fail
DC(T)	690 J/m^2 min	663	Fail	690	Pass	717	Pass
iFIT	FI ≥ 6	18.4	Pass	7.1	Pass	13.8	Pass
Hamburg	Rut ≤ 12.5 mm	12.5*	Fail	6.7	Pass	11.8	Pass

*A measured value of 12.52 mm was recorded

COMPARISON OF LAB-PREPARED MIXES

Following lab evaluations, the same ECR and control mixes were placed on I-35 for evaluation, first in a shoulder-type application and secondly on the I-35 mainline near Liberty, MO.

PROJECT LOCATION

Samples of the control and ECR shoulder mixes were also subjected to rut and cracking lab evaluations. As was the case with the lab-prepared specimens, the production mixes with ECR outperformed the polymer modified mixes.

		Control		ECR	
Test	**Criteria**	Result	Pass/Fail	Result	Pass/Fail
DC(T)	690 J/m^2 min	753	Pass	1156	Pass
Hamburg	Rut ≤ 12.5 mm	18.5	Fail	11.2	Pass

LAB TESTING OF FIELD-PRODUCED MIX DESIGNS

Full mainline paving followed the second lab evaluations. No issues were experienced in plant and laydown operations.

I35 MAINLINE SMA PAVING

Samples of the production mixes were collected and compared. The reported results were:

	CR	**PMA**
DCT	692	526
IDEAL	150	47
IFIT	9.0	3.2
HAMBURG*	6.8	2.5

* Both are passing results under MODOT

After a record cold winter, the Elastiko^{R} pavement performance on I-35 continues to perform well.