DuPont™ Elvaloy® RET binder modifiers provide lasting performance to roads around the world.

DUPONT™ ELVALOY® RET BINDER MODIFIERS

The binder modifier specially designed to give you the best performance and value while minimizing safety hazards from road deterioration.

OVER 20 YEARS OF PROVEN PERFORMANCE

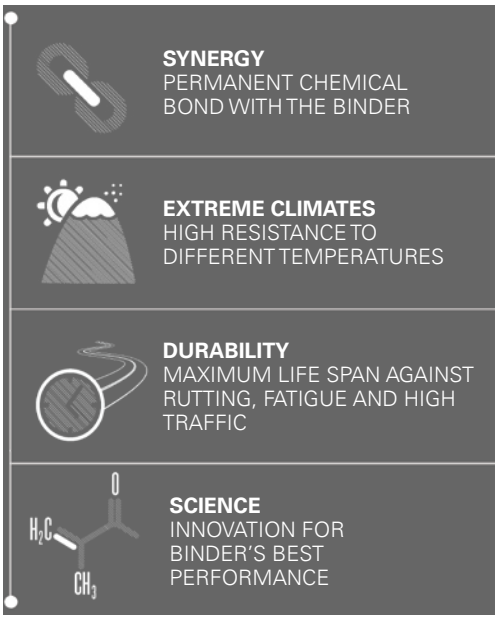
Innovators have been using Elvaloy® RET in their roads around the world since 1991. The unique properties of Elvaloy® RET make it the perfect material choice to address climate, performance, and delivery challenges. No matter what the conditions are, Elvaloy® RET delivers excellent performance and durability to roads everywhere.

EXCELLENT PERFORMANCE

- Elvaloy® RET provides exceptional rutting resistance and hot/cold-temperature performance.
- Elvaloy® RET offers great fatigue cracking protection.
- Elvaloy® RET has inherent stripping resistance.
- Elvaloy® RET meets the requirements of fuel resistance for binder mixes.

EFFICIENT PROCESSING

- With a short mixing time, Elvaloy® RET-modified binder can be produced on demand, based on your needs.
- Elvaloy® RET can be compacted and mixed at lower temperatures than SBS-modified binder.
- Elvaloy® RET can be easily blended into the hot binder – no high shear mill required.
- Elvaloy® RET is a stable product and the modified binder can be stored for several months, eliminating any potential wastage of polymer.
- Elvaloy® RET requires lower storage temperature and lower energy usage than SBS.



MEETS OR EXCEEDS SPECIFICATIONS

- Elvaloy® RET allows you to cost-effectively meet empirical and performance specifications.

BETTER VALUE

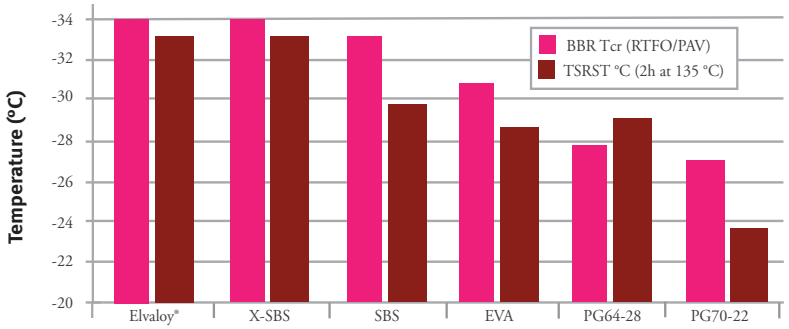
- Elvaloy® RET requires lower capital investment than competitive alternatives.
- Elvaloy® RET is not susceptible to pricing swings from butadiene availability like SBS.

DUPONT™ ELVALOY® RET PERFORMS BETTER THAN OTHER BINDER MODIFIERS IN THE FOLLOWING TESTS:

LOW TEMPERATURE PERFORMANCE TEST

Thermal cracks in pavement occur when temperature-related forces of expansion and contraction exceed a binder's ability to stretch or compress enough to conform to these movements. Roads modified with Elvaloy® RET have high resistance to changes in temperatures. The binder modified with Elvaloy® RET displayed the best performance in extreme temperatures among several modifiers.

Figure 1: Low Temperature Performance of Binder Modified with Different Modifiers



Source: Federal Highway Administration – FHWA-RD-02/074 10/2010

HAMBURG RUTTING TEST

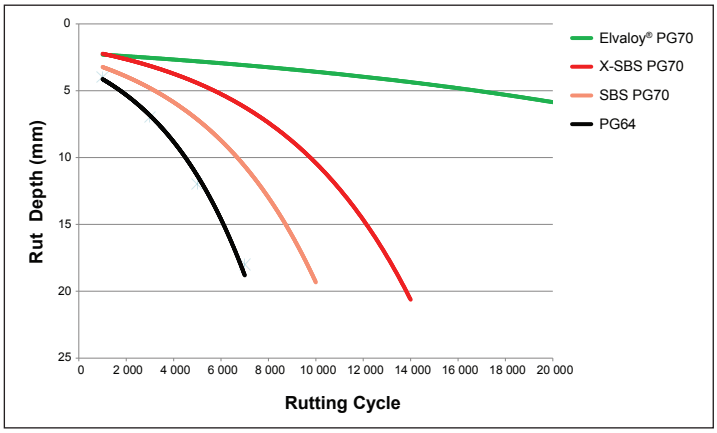
Repeated heavy loads cause pavements to permanently deform over time, forming unsafe ruts in the road. The Hamburg rutting test stimulates the dynamic of heavy and repeating traffic loads to determine the pavement's performance after a specified number of passes. The binder modified with Elvaloy® RET displayed the greatest resistance to rutting in the Hamburg rutting test.

Hamburg Rutting Test
(visual results)

Conventional Binder

Binder Modified with Elvaloy® RET

Figure 2: Hamburg Rutting Test
Hamburg WTD - (under water 58 °C) diabase mix, 7 % void

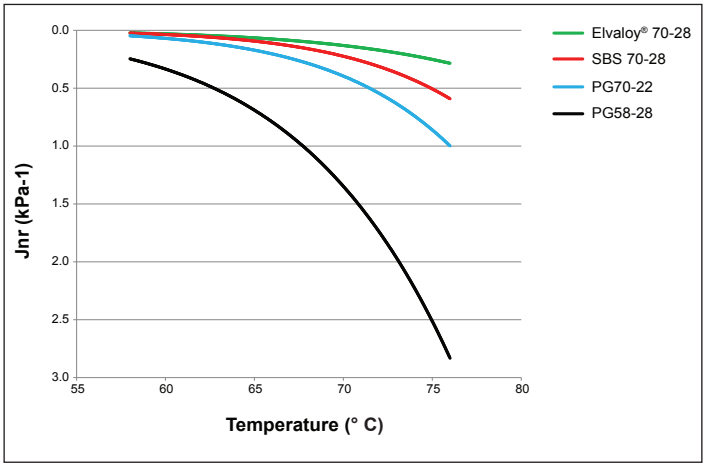


Source: Understanding the Performance of Modified Asphalt Binders in Mixtures; Evaluation of Moisture Sensitivity (NCHRP) Project 90-07

MULTIPLE STRESS CREEP RECOVERY TEST

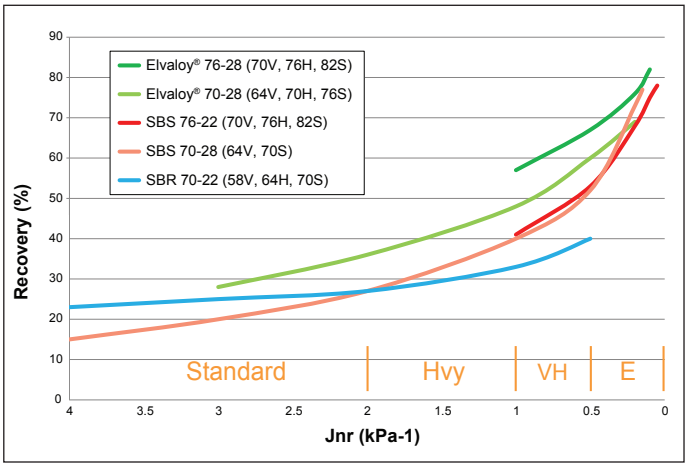
The Multiple Stress Creep Recovery Test (MSCR) predicts the pavement's performance to rutting at different temperatures and stress levels. Binder modified with Elvaloy® RET displayed the greatest resistance to rut formation in even extreme temperatures.

Figure 3: Multiple Stress Creep Recovery Test - Stress vs. Temperature at 3.2kPa



Source: MSCR Test & Method Specification – Federal Highway Administration – John D'Angelo - 2008

Figure 4: Multiple Stress Creep Recovery Test - Recovery vs. Stress at 3.2kPa



Source: MSCR Test & Method Specification – Federal Highway Administration – John D'Angelo - 2008

WE WORK COLLABORATIVELY TO DELIVER SOLUTIONS THAT MEET YOUR NEEDS.

With over 200 years of continued innovation in science and technology, we bring our expertise to the paving industry to invent new products that optimize performance. Our DuPont Global Paving Center provides access to top scientists and state-of-the-art equipment to enable advanced testing and tailor-made support for customers with diverse requirements all across the world.

We estimate that more than 150,000 kilometers of roads around the world are paved with DuPont™ Elvaloy® RET, including countries such as:

LET US HELP YOU PAVE THE WAY TO SUCCESS.

FIND OUT MORE AT WWW.ASPHALT.DUPONT.COM

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