



## 100 Percent Reclaimed Asphalt Used In All Layers of Rotterdam Bike Lane.

*Performance additive enhances asphalt durability, reduces carbon footprint*

### PROJECT:

BICYCLE LANE COMPOSED OF  
100 PERCENT RECLAIMED ASPHALT

### PRODUCT:

SYLVAROAD™ RP1000  
PERFORMANCE ADDITIVE

### LAYERS:

SUB, BASE AND SURFACE

### CUSTOMERS:

KWS ON BEHALF OF THE PORT OF  
ROTTERDAM AND THE  
ROTTERDAM MUNICIPALITY

### LOCATION:

ROTTERDAM



“Because of the new production method and the use of the biobased rejuvenation product SYLVAROAD™ RP1000 Performance Additive, the properties are fully equivalent to ordinary asphalt.”

UNLIKE PETROLEUM-BASED PRODUCTS WHICH SIMPLY DILUTE OLD BITUMEN, SYLVAROAD RP1000 MOBILISES THE BINDER FROM THE RECLAIMED ASPHALT SO IT PARALLELS A VIRGIN MIX.

### INNOVATIVE APPLICATION OF RECLAIMED ASPHALT

A Dutch road’s critical surface layer typically contains only about 30 percent reclaimed asphalt, since there are perceived performance issues such as cracking and water damage when using more than that amount. When higher amounts of reclaimed asphalt are combined with virgin material, the mix is used primarily in base and sub-base layers of roads.

Seeking innovative ways to gain greater value from reusing asphalt in road construction, Rotterdam decided to explore the ultimate challenge: using 100 percent reclaimed asphalt in all layers of a city center bike lane.

### HIGH MOBILIZATION ENSURES OPTIMAL PERFORMANCE

To enable 100 percent reclaimed asphalt to be used in the complete asphalt construction including the surface layer of the bike lane, biobased rejuvenator SYLVAROAD™ RP1000 Performance Additive was deployed. Unlike petroleum-based products, which simply dilute used bitumen, SYLVAROAD RP1000 mobilises the binder from the reclaimed asphalt so it performs as well as a virgin mix.

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A new technique used at the KWS plant ensured a high level of mobilisation. After the heating process, the SYLVAROAD RP1000 additive was directly sprayed on the reclaimed asphalt. This allowed SYLVAROAD RP1000 to only reach the asphalt material needing rejuvenation, avoiding unnecessary interaction with fresh materials.

### POSITIVE RESULTS REDUCE CARBON FOOTPRINT

Given the high traffic and use, the bike lane has held up well with no evidence of cracking, rutting or water damage. This positive outcome aligns with the research studies conducted by the National Center for Asphalt Technology (NCAT) at Auburn University in the U.S. and by Braunschweig University in Germany. Their analyses confirmed that respective U.S. and E.U. mixes with high percentages of reclaimed asphalt and SYLVAROAD RP1000 performed at least as well as a mix made of 100 percent virgin materials.

Since the used asphalt was sourced locally, it was unnecessary to transport fresh bitumen and aggregates long distances to the mixing plant. Along with the higher amount of reclaimed asphalt, this solution reduced the environmental impact associated with the asphalt production process.

The trial results are a significant step forward in proving the application of reclaimed asphalt on all layers of roadways— including routes trafficked by heavy, high speed vehicles. Estimates show significant cost savings in net raw materials when using SYLVAROAD RP1000.

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