



## ASPHALT PRESERVATION | HIGHWAYS

RHINOPHALT® by ASI Solutions is a BBA HAPAS and UKCA/CE Marked, Gilsonite fortified cold spray-applied penetrative asphalt preservative. To date, more than 20 million m<sup>2</sup> of asphalt surface course on highways and airfields has been treated with RHINOPHALT in the UK and worldwide.

RHINOPHALT is best utilised as a preventative maintenance or protective measure as part of a long-term asset management strategy, extending the service life of the asphalt surface course and significantly delaying the need for reactive maintenance and resurfacing by up to 5 years per application.

RHINOPHALT can be applied at night and only requires one site visit and no aftercare. It should be applied onto sites that are still in reasonable condition, typically 2 years before reactive maintenance is needed. For example, if, based on local knowledge, SMA starts to show defects after 10 years, then it is best to treat by year 8.

### BENEFITS

- RHINOPHALT slows down the ageing process of the treated asphalt surface course and in doing so extends the service life by, typically, 5 years before retreatment becomes necessary
- Demonstrated to double the life for half the cost compared to resurfacing
- Case studies have demonstrated reduced whole life costs, achieving up to a 30% reduction in maintenance costs and a 40% reduction in unplanned interventions
- Reduces demand for reactive maintenance, fewer potholes and significantly reduces FOD on airfields
- Provides an alternative to surface dressing where this isn't the preferred option
- Improves asphalt condition with no change to surface characteristics (grip, texture and noise)
- Delivers 94% CO<sub>2</sub> savings compared to conventional road resurfacing.



Seals micro-cracks



Reduces ingress of water, salts and contaminants



Improves wear resistance



Reduces binder oxidation



Reduced demand for reactive maintenance



Operational & environmental benefits

### HOW RHINOPHALT WORKS

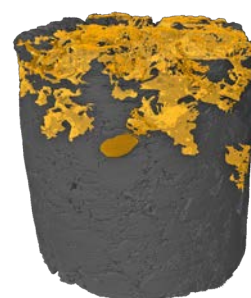
RHINOPHALT is applied before defects become visibly evident. It penetrates the asphalt surface through micro-cracks and interconnecting voids to form a hard seal, keeping water out\* and slowing the ageing process – keeping asphalt in good condition longer.

RHINOPHALT contains Utah Gilsonite, which is a natural bitumen and antioxidant, that is proven to slow down the rate of deterioration by minimising the factors which cause the oxidation and evaporation of these vital bitumen components, thus extending the life of the asphalt surface.

- ✓ Improves retention of aggregate
- ✓ More resistant to wear than new bitumen
- ✓ Arrests further deterioration of the asphalt surface.

\* Application rate for porous asphalts can be adjusted

Testing on treated SMA cores using X-Ray CT scanning has shown the porosity in the top half of the surface course is reduced by up to 35% without negatively affecting surface texture. This means that a surface course with 7% in-situ voids can be reduced to 5% which is considered to significantly slow the ageing process.



**FIGURE 1**

X-Ray CT scan of an SMA core showing the penetration of RHINOPHALT creating a reduction in porosity. The depth of penetration on this core sample is >30mm.

## SEALING & PROTECTING

Over time as asphalt ages micro cracks form in the surface course allowing water and oxygen to penetrate accelerating the rate of deterioration by weakening the aggregate-bitumen bond.

Treatment with RHINOPHALT seals the asphalt surface and minimises the ingress of water into the pavement which would typically occur without a preservative treatment.

Hydraulic conductivity measurements taken from existing site contracts show a significant reduction in permeability for surfaces treated with RHINOPHALT compared to the control untreated sections. A significant reduction in hydraulic conductivity can be demonstrated on treated sites many years post application.

Further laboratory studies with Vinci, using water permeability testing showed water ingress into SMA is reduced by up to 87% following a treatment of RHINOPHALT.



SAMPLE TYPE	WATER PERMEABILITY (M/YR)
UNTREATED	8.58
TREATED	1.14

**TABLE 1**  
Water permeability test results

## APPLICATION

RHINOPHALT can be applied at night which works well with maintenance programming whilst the rapid curing time means that the line markings can be applied in the same closure window. Treatment does not add weight to the pavement structure and does not raise the surface profile height.

RHINOPHALT provides invisible working and increased productivity, treating up to 30,000m<sup>2</sup> per shift - 1 site visit, no aftercare, no remedials.

Surface texture is maintained, and grip is restored by fine grit/dust application or sweeping.



## AREAS OF APPLICATION



All categories  
of roads



Civil & military  
airfields



Car parks



Test tracks  
& racetracks

Incorporating RHINOPHALT into your asset planning will extend the life of your asphalt infrastructure and reduce the need for disruptive reactive maintenance. It can also enhance the benefits gained from increased public perception, fewer requests for service and reduced insurance claims.

Contract case studies are available.

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Leaders in asphalt preservation

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