RHiNOPHALT®

ASPHALT PRESERVATION | AIRFIELDS

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^2 of asphalt surface course has been treated with RHiNOPHALT, around 3 million m^2 of which has been to runways and taxiways worldwide, both military and civil.

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 day or night, to any asphalt surface and dries rapidly to leave a uniform black finish. Friction is maintained by the simultaneous application of a very fine abrasive dust, or by sweeping the surface with steel brushes once the RHiNOPHALT has cured. Markings can be refreshed in the same restricted operating shift.

BENEFITS

- Slows down the ageing process of the treated asphalt surface, typically extending the service life by 5 years before retreatment becomes necessary.
- Reinforces the asphalt's aggregate-bitumen bond, significantly reducing Foreign Object Debris (FOD) caused by surface ravelling. Case studies have shown a FOD sweep reduction by up to 90% after RHiNOPHALT treatment.
- Seals the surface, keeping water out.
- Maintains asphalt condition with no change to surface characteristics (grip, texture and noise) and has no negative impact on a grooved surface.
- Reinforces the surface course after damage caused by rubber removal or removal of paint markings.
- Allows large areas of up to 60,000m^2 to be treated in a single shift minimising disruption to airfield operations, and rapid curing ensures that works can be completed under more restrictive site conditions such as night-time work and short operational windows.
- Provides a short-term solution to hold older pavements together and reduce stone loss pending a full resurfacing.
- Delivers 94% CO_2 savings compared to conventional asphalt resurfacing.

- Seals micro-cracks
- Reduces ingress of water, salts and contaminants
- Improves wear resistance
- Reduces FOD
- Whole life cost savings
- 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.

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.

RHiNOPHALT does not soften the asphalt binder or modify its chemical composition, but it preserves the asphalt in its current condition, keeping it in good condition for longer. Application of both RHiNOPHALT preservative and fine abrasive dust from a single delivery vehicle results in almost invisible working in a single pass process and no aftercare, such as sweeping.

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

* RHiNOPHALT application rate can be adjusted on porous friction courses without affecting drainage

Testing on treated Marshall Asphalt cores using X-Ray CT scanning has shown the RHiNOPHALT:

- Penetrated to a depth of more than 15mm
- Reduced porosity in the top half of the surface course by up to 28% without negatively affecting surface texture.

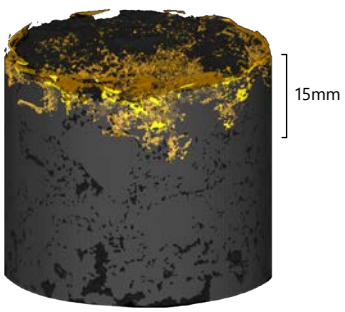


FIGURE 1

X-Ray CT scan on an Marshall Asphalt core showing the penetration of RHiNOPHALT creating a reduction in porosity. The depth of penetration on this core sample is >15mm.

SEALING & PROTECTING

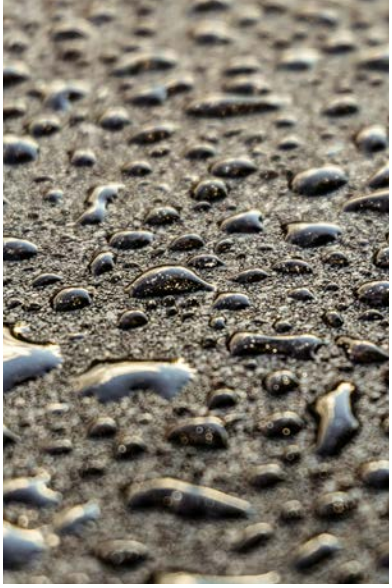
As asphalt ages, micro cracks form in the surface course allowing water and oxygen to penetrate; accelerating the rate of deterioration by weakening the aggregate-bitumen bond.

Treatment with RHiNOPHALT seals the asphalt surface and minimises the ingress of water, oxygen, and other contaminants, into the pavement.

Hydraulic conductivity measurements taken from existing site contracts show a significant reduction in permeability for surfaces treated with RHiNOPHALT compared to untreated control sections.

In a recent contract, in-situ permeability testing on a 10-year-old dense Marshall Asphalt surface demonstrated a 99% reduction in hydraulic conductivity following treatment with RHiNOPHALT (see table).

The significant reduction in permeability can be evidenced on RHiNOPHALT treated sites for many years post-application, demonstrating that RHiNOPHALT gives lasting protection to asphalt surfaces.



SAMPLE TYPE	WATER PERMEABILITY (M^2)
UNTREATED	5.879
TREATED	0.067

TABLE 1
Water permeability test results

APPLICATION

RHiNOPHALT can be applied at night which works well with airfield strict maintenance programming, whilst the rapid curing time means that the line markings can be applied in the same closure window.

RHiNOPHALT provides invisible working and increased productivity, allowing up to 60,000m^2 to be treated per shift, and requiring no aftercare or additional construction plant on site.

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

AREAS OF APPLICATION

Civil & military airfields

Runways, taxiways & aprons

All categories of road

Car parks

Incorporating RHiNOPHALT into your asset planning and whole life costing will extend the operational life of your asphalt infrastructure and delay the large costs of resurfacing and repair works. It is also used to extend the life of older pavements to arrest aggregate loss, and to allow time and for a planned surface replacement.

RHiNOPHALT can also enhance the benefits gained from increased aircraft operator perception, improved safety, and less disruption of airfield operations.

Contract case studies are available.

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