



USED FOR



Ravelling



Waterproofing



Chip Loss



Micro-cracking



Oxidation
Resistance

ENVIRONMENTS



Residential



Rural



Airports

EnviroShield

Extend pavement life.

EnviroShield is a high-performance surface treatment designed to extend the life of aging asphalt and chip seal surfaces that are beginning to fret and ravel.

Applied warm via spraying, EnviroShield creates a durable protective layer that slows deterioration and enhances surface integrity.

With its low viscosity, EnviroShield penetrates deep into the surface, curing to form a waterproof barrier that locks in aggregate and reduces oxidation. This advanced formulation features an ultra-hard, abrasion-resistant bitumen, engineered to withstand the stresses of heavy use while maintaining a low-tack finish.

Powered by Road Science's industry-leading bitumen emulsion technology, EnviroShield offers a faster, more cost-effective alternative to conventional resurfacing methods — delivering long-lasting protection without the hefty price tag.

Where to use EnviroShield

- As a trackless coat in paving applications
- Surface preservation (asphalt or chip seal) when there are signs of fretting or raveling
- Hairline crack filling (under 2mm)
- Fast return to service without binder tracking
- Residential, low-volume roads, urban arterials, and airport runways

Benefits

- Quieter than chip seal
- Rapid curing
- Resistant to oxidation
- Extremely durable
- Low-tack finish
- Extends the life of aging asphalt and chip seal surfaces
- Improves aesthetics + a smooth ride
- Cost-effective alternative to asphalt

Specification

Typical properties of EnviroShield

Property	Method	Specification
Binder content (%)	In-house	50 - 53
pH	In-house	1.8 - 3.0
Viscosity @ 25°C (mPa.s)	ASTM D4402	5-100
Softening point (Residual binder)	ASTM D36	56 - 72°C
Penetration (dmm) (Residual binder)	ASTM D5	15-25

Properties



Reduced Emissions



Emulsion

Handling

For safe handling of bituminous materials, please refer to the [Best practice guideline: Safe Handling of bituminous materials used for roading \(BPG01\)](#)

EnviroShield should never be handled, pumped, or stored below 60°C.

EnviroShield	
Normal handling temperature	60 - 80°C
Maximum safe handling temperature	80°C
Normal spray temperature	80°C
Normal pumping temperature	60 - 80°C
Mixing binder temperature	60 - 80°C

Circulation

EnviroShield is susceptible to sedimentation, therefore recirculating the product for at least 30 minutes before spraying is advised.

Gentle stirring/circulation of the emulsion is required to prevent long term settlement of the binder phase. Never allow EnviroShield to freeze, as due to the presence of water in the emulsion, the emulsion will break.

Do not store product for over 24 hours without recirculation.

Equipment

EnviroShield can be applied using most standard emulsion sprayers. Flush spray bar, hand lance, and pump thoroughly at the end of the day to ensure equipment doesn't have any blockages.

For best results, a two step flushing process is recommended;

- First flush with water to remove any uncured emulsion
- Second flush with diesel or kerosene to remove any cured binder

It is also recommended to flush the spray bar with water if there will be more than a two hour gap between spray runs.

Heating

If you do need to reheat EnviroShield, then this needs to be undertaken slowly with the rate of heating not exceeding 10°C per hour. Never heat beyond 80°C.

Storage

EnviroShield	
Short term storage temperature (up to 2 days)	80°C
Medium term storage temperature (3 to 5 days)	60°C
Long term storage temperature (beyond 5 days)	60°C
Critical long term storage temperature	60°C

Continuous gentle agitation is recommended when storing EnviroShield.

Treatment Selection + Mix Design

If you're unsure which treatment solution is best suited for your project — considering factors such as traffic volumes and asset management — consult a member of the Road Science Product Development Team. They can assist in determining the appropriate treatment selection and guide you through the mix design process.

Application

Surface must be free of lichen, excessive dust, or any other detritus. Cracks larger than 2mm must be repaired prior to application with Road Science's [UltraMender](#).

EnviroShield can be sprayed using conventional spraying equipment. If high application rates are required, consider applying in two coats to avoid run-off. EnviroShield cannot be cold sprayed.

Sufficient surface texture must be available to accommodate the desired application rate of the material.

To ensure surface has been adequately covered, follow the recommended application rates. Chip seals application rate is dependent on its Mean Profile Depth (MPD).

EnviroShield Application Rates

Applying EnviroShield using the SEP methodology is applied at a total application rate of 1.4 - 2.1 L / m², depending on surface texture and condition. The treatment consists of EnviroShield followed by an application of grit

A light application of an appropriate grit after spraying is recommended to reduce time before the treatment can be trafficked and to provide a temporary wearing course. The grit can be swept off once the emulsion has cured. We recommend sweeping 24 hours after application.

Care should be taken to ensure the site does not possess any steep gradients that could cause excessive run-off of the emulsion. If this is the case, the emulsion may need to be applied in multiple coats (as deemed achievable by the applicator)

Application is not recommended at temperatures below 8°C or humidity above 85% as this can lead to extended curing times. Optimum curing rates occur around 20°C to 25°C.

Sampling

For managing bitumen quality, please refer to the [Waka Kotahi NZ Transport Agency Q05 specification for managing bitumen quality report](#)

Need more information?

At Road Science, we're committed to providing innovative solutions backed by engineering expertise. If you have any questions about this product, need technical guidance, or want to discuss how it fits your specific project needs, our team is here to help. Contact us today for expert advice and tailored support. Contact us via **0800 180 200** or visit our website at **roadscience.co.nz** to learn more.

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