

WITH IMPRESSIVE STRENGTH AND DURABILITY, BREEDON Polymer *THIN SURFACING* IS IDEAL FOR HEAVY TRAFFICKED MOTORWAYS AND TRUNK ROADS.

APPLICATIONS

- Motorways
- Trunk roads
- Major routes
- Urban areas

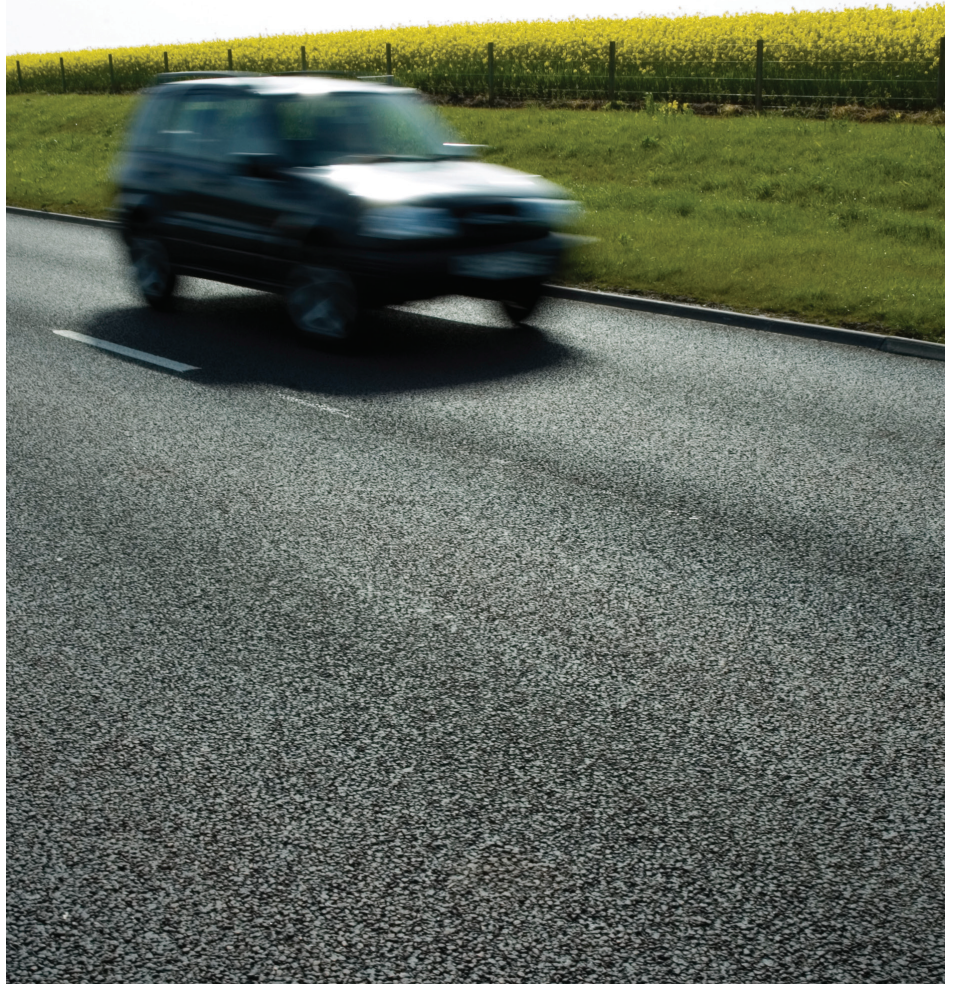
OVERVIEW

BREEDON Polymer has been designed using Stone Mastic Asphalt technology. Polymer modified bitumen and high stone content, which forms a coarse stone skeleton, give this product impressive strength and durability, ideal for heavy trafficked motorways and trunk roads.

BREEDON Polymer has been extensively used for a number of years on major route contracts in England and Scotland. Approved by Transport Scotland, BREEDON Polymer has gained a reputation as a high quality, durable product.

TECHNICAL DATA

BREEDON Polymer is a Thin Surface Course System approved under the Highway Authorities Product Approval Scheme (HAPAS) by the British Board of Agrément (BBA) and holding a BBA HAPAS Roads and Bridges Certificate, fulfilling the necessary criteria defined in Clause 942 of the Specification for Highway Works. The system achieves the following Performance Levels as defined in BBA Guidelines:



System	Factor Assessed	Performance Level Achieved
10mm BREEDON Polymer	Surface Macrotexture	The system is designed to comply with the initial and retained texture depth requirements for an installed 10mm upper aggregate size thin surfacing system in accordance with the MCHW, SHW, Volume 1, Clause 942, incorporating Interim Advice Note 154/12, Clause 921, Table 9/3SR and Table NG 9/32, and is satisfactory for use on roads with this requirement.
	Wheel Tracking (Resistance to Permanent Deformation)	Level 3
	Sensitivity to Water	>80% Retained Stiffness
	Bond to Substrate	>400kPa
	Durability	The system can be designed to provide a durable surface course that will meet the MCHW, SHW, Volume 1, Clause 942, requirements.
14mm BREEDON Polymer	Surface Macrotexture	Level 3
	Wheel Tracking (Resistance to Permanent Deformation)	Level 3
	Sensitivity to Water	>80% Retained Stiffness
	Bond to Substrate	>400kPa
	Durability	System will provide a durable surface course.

Determination of resistance to rutting under traffic

Water immersed wheel tracking carried out in accordance with BS 598-110: 1998. Samples were subjected to a 520 Newton load on a wheel for 24 hours under water at 60°C (70/100 pen bitumen softening point 43-51°C). Average rut depth was found to be only 1.9mm, demonstrating a very high level of deformation resistance.

Material fully complies with requirements of SHW Vol.2 table 9/29 Level 3 (maximum wheel tracking rate <5mm/hr and maximum rut depth <7mm).

CONSTRUCTION

Installation of the system is carried out by Breedon or Approved Installers licensed by Breedon. Such an installer is a company:

- employing operatives who have been trained and approved by Breedon to install the system.
- which has undertaken to comply with the Breedon's Installation Procedures.
- subject to supervision by Breedon, including site inspections.

The system must be installed in accordance with the Breedon's Installation Procedures, incorporating guidance provided in BS 594987.

The system can be applied to bituminous or concrete substrates on roads installed in accordance with the MCHW, SHW, Volume 1, Series 900, Clause 942.

Provided the substrate is free from standing water or ice, and the minimum rolling temperature can be achieved, the system can be installed at a minimum ambient temperature of -1°C measured on a rising thermometer.

Wind speed must be measured, and a decision on whether to proceed with the installation determined in accordance with MCHW, SHW, Volume 1, Series 900, Figure 9/1.

The substrate must be prepared in accordance with BS 594987. Wheel track ruts and depressions shall be pre-treated with regulating material before overlaying.

Bitumen emulsion bond coat is spray applied to achieve a minimum residual bitumen of 0.15 kg/m², depending on the porosity and binder content of the receiving layer, at a temperature $\geq 80^{\circ}\text{C}$.

For small areas and detailing, bitumen emulsion tack coat may be used instead of a bond coat, but this must be applied to leave a uniform coating, using appropriate hand-held equipment.

The emulsion must be allowed to break (i.e. change from brown to black) prior to the application of the system.

Wherever possible, the system shall be machine laid by a paver capable of laying continuously to produce an even surface to the required widths, thicknesses, profiles, crossfalls and/or cambers. The

screed shall be sufficiently pre-heated prior to commencement of surfacing. Care must be taken when loading the paver to not disturb previously laid material. Machine and hand installation must follow the requirements of BS 594987.

A tandem roller with a minimum deadweight of 6 tonnes (preferably a 10 tonne deadweight roller) shall be used as the lead roller, with the backup rollers having the same minimum deadweight requirement. Smaller machines should only be used in areas of restricted access. Compaction must follow the requirements of BS 594987, and the tandem rollers shall be used in deadweight mode only, except on the open joint or hand laid areas where vibration may be required to ensure full compaction.

Rolling and compaction must commence as soon as possible, above the minimum rolling temperature (the value of which is dependant on the binder used).

All joints must be prepared in accordance with BS 594987. They must be saw cut to a full depth vertical face, cleaned, and painted with a thick uniform coating of hot bitumen (with a penetration of not less than 40 pen), hot elastomeric polymer modified binder (with a penetration of not less than 40 pen), cold applied thixotropic bituminous compound, or polymer-modified adhesive bitumen strip with a minimum thickness of 2mm, prior to the next run of material.

Gritting of BREEDON Polymer is not considered necessary, and shall not be undertaken unless otherwise specified in the contract.

The nominal layer thicknesses shall be as follows with a maximum of 55mm at any point:

Largest Nominal Aggregate Size	Nominal Layer Thickness	Minimum Thickness at Any Point
10mm	25 - 50mm	20mm
14mm	30 - 50mm	25mm

BENEFITS

- British Board of Agrément approved in accordance with the Highway Authorities' Product Approval Scheme. BBA HAPAS Roads and Bridges Certificate Number 05/H112.
- Fully satisfies the requirements of the Specification for Highway Works Clause 942 "Thin Surface Course Systems".
- High durability.
- Superior resistance to rutting.
- Low spray.
- Extremely low surface noise.
- Excellent rideability.
- May be installed all year round (dependent on climatic conditions).
- Can be engineered to give varying surface textures as required.
- Polymer modified binder selected for the end use application.
- High softening point, reducing risk of damage.
- May be trafficked sooner than conventional bituminous materials.

MAINTENANCE AND REPAIR

BREEDON Polymer is not subject to any specialised routine maintenance processes, and should be maintained in accordance with the Design Manual for Roads and Bridges HD 31/94 "Maintenance of Bituminous Roads".

Motorways, trunk roads and other major repairs

Any damaged areas shall be removed by planing to the appropriate depth to provide a minimum length of 15m for paver resurfacing. The planed area will be resurfaced using material to the same specification, in accordance with Breedon's Installation Procedures.

Minor repairs

- Minor repairs can be carried out by cutting out the damaged section and replacing it with a material of suitable specification agreed between Breedon and the Client.

- A K1-40 (C40 B 4) or K1-60 (C60 B 4) tack coat, or an acceptable proprietary bond coat, will be used on the receiving substrate.
- Wherever possible, a diamond patch reinstatement shall be used, extending a minimum of 0.25m beyond the damaged section.
- Joints must be saw cut vertical, cleaned and painted with a thick uniform coating of hot bitumen, hot elastomeric polymer modified bituminous binder, or cold applied thixotropic bituminous compound prior to laying.

WHY CHOOSE BREEDON PROPRIETARY MATERIALS?

The Proprietary Materials offered by Breedon are extensively designed and rigorously tested to exceed the performances of traditionally used asphalts in specific applications. Our Proprietary Materials often include additives to achieve these high levels of operation.

PRECAUTIONS AND LIMITATIONS

Asphalt remains relatively soft for up to one year after laying; until it has time to oxidise and harden (i.e. elasticity is reduced). It is recommended that the surface is not trafficked for at least 2 hours following installation, when it is most susceptible to damage. When trafficked by vehicles, it is recommended that they are moving when the wheels are turned. If a vehicle is stationary when tyres are turned (particularly with modern power steering), the asphalt can be displaced and marked by stresses applied at that particular point. It is also recommended that (wherever possible) vehicles are parked in different positions to avoid marking the asphalt, and heavy vehicles, trailers, plant, machinery and ladders with small footprints are parked on wooden boards to disperse the loading. Fuel spillages should also be contained and cleaned up as soon as possible as these will compromise durability. Recommended procedure for removing diesel spillages is as follows:

- Stem the leak.
- If necessary, contain the spillage by deploying booms around the source and block any drains.
- Apply absorbent granules (e.g. cat litter) or sand to the spillage area.
- Sweep up the absorbent granules and dispose of in accordance with environmental regulations.
- Scrub the surface using a mild detergent. Any effluent resulting



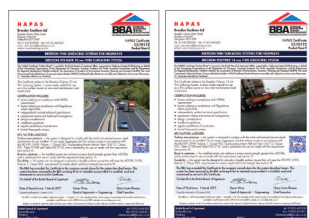
from the clean-up activity must not be washed into surface water drains as it is an offence under the Water Resources Act 1991.

QUANTITY REQUIRED

As a guide, please refer to the Material Calculator on our website (www.breedongroup.com).

AVAILABILITY

BREEDON Polymer can be installed all year round (depending on climatic conditions) by, or under license from, Breedon.



TO DISCUSS YOUR PROJECT REQUIREMENTS, AND FOR MORE INFORMATION ABOUT OUR PRODUCTS CONTACT:

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The information given in this technical datasheet is based on our current knowledge and is intended to provide general notes on our products and their uses. Breedon Group plc endeavours to ensure that the information given is accurate but accept no liability for its use or its suitability for a particular application because of the product being used by the third party without our supervision.

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