Nynas

**Government policy has added further impetus to thin surfacing's succession as Britain's preferred wearing course material and increased demand for Nynas high performance bitumen binders.**

# Thin products get the nod

A new breed of asphalts has taken over from Hot Rolled Asphalt (HRA) as the material of choice for surfacing Britain's roads. Thin surfacings, as they are known to the asphalt sector, will take at least 80% of the trunk road maintenance market during 2000/2001, according to Highways Agency officials.

Thin surfacing technology was introduced from France in 1991 and its development has since been accelerated by significant changes in the way asphalt is specified and supplied in Britain.

Thin surfacings are defined as bituminous surfacing products of a nominal depth less than 40mm. This defining limit is commonly held as the minimum thickness to which a HRA wearing course can be laid successfully.

A recent boon to sales of thin surfacing materials came in 1998 when the Government published its New Deal for Trunk Roads in England White Paper. This committed the Highways Agency to use of quieter wearing course materials and set the road surfacing policy for other clients to follow.

*"All thin surfacings are similar in that they can be laid quicker than HRA wearing courses and can provide a cost effective alternative to traditional treatments."* **Steve Harris**

Use of thin surfacings has accelerated as a result and the HA's latest maintenance strategy has tipped the balance even further in favour of these materials (see box).

Development of performance based testing and specifications has shadowed the increase in popularity of thin surfacing materials. Quality is now being gauged with more emphasis on how a product or process performs.

Performance engineered binders are an integral part of thin surfacings, and as a result of all of these developments, bitumen specialist Nynas has experienced a significant increase in demand for its binder design services.

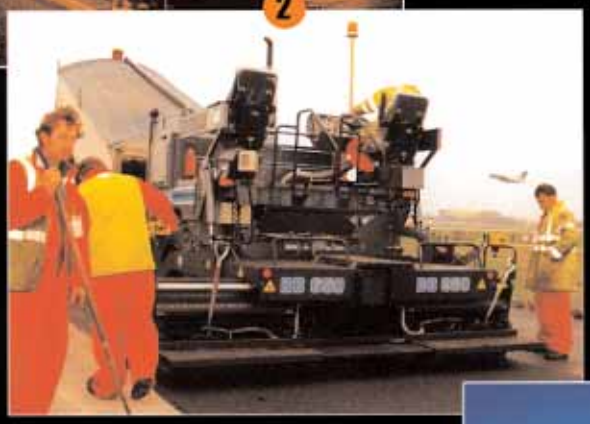
"Initially it was thin surfacings' skid and spray reducing characteristics that were attractive and led to their development to suit our roads and specifications," says Nynas Materials Engineer Steve Harris. "However, in recent times the uptake of thin surfacing has been driven by environmental concerns, particularly reduced noise achieved by these systems and less demand on aggregate extraction."

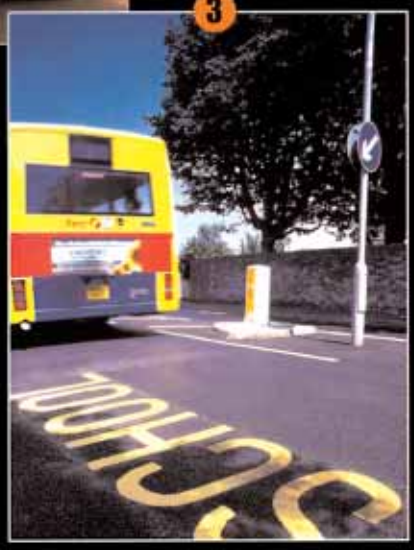
Harris says describing all thin surfacings as one type of wearing course belies the nature of their development and application.

Thin surfacings are, in the main, marketed as proprietary products under brand names. Many of Britain's leading asphalt suppliers have developed their own thin surfacing systems to provide particular characteristics and benefits when in use.

"The majority of proprietary systems on the market are variations on the same theme," says Harris. "A stable stone skeleton forms the foundation of their performance. But each product features a unique relationship between aggregate matrix, void content and binder film thickness.

"However, all thin surfacing systems are similar in that, generally, they can be laid quicker than HRA wearing courses and can provide a cost





1. **Thin surfacings such as Hanson's Tuffgrip can be laid quickly to provide a durable surface**
2. **Drivepoint Construction applied Foster Yeoman's Premier Pave at Gatwick Airport**
3. **Thin surfacing materials produce safer roads with low skid characteristics.**
4. **HAPAS categorises thin surfacing products into groups relating to depth of application and performance**

**White Paper** The Department of the Environment, Transport and the Regions made a firm commitment to providing quieter road surfaces in its 1998 New Deal for Trunk Roads White Paper, which stated:

"To help reduce the impact of traffic noise on those living close to the existing network we have decided that all future maintenance contracts where noise is a particular concern will specify quieter road surfaces."

Highways Agency Pavement Engineering Group Consultant John Mercer works for the department responsible for designing and coordinating the HA's road maintenance strategy.

"Application of thin surfacings has risen dramatically as a result of the White Paper and the proportion of resurfacing on HA roads using these materials will continue to increase from its present level of around 80% of the market," says Mercer.

"In March 2000 the HA announced its planned major maintenance schemes for the coming financial year in line with the commitment it made in 1998. All 13 projects listed in the White Paper will go ahead with an overall budget of £1400M, and each one will feature a low-noise wearing course."

The quiet road surfaces to be laid in 2000/2001 may include whisper concrete and porous asphalt, says Mercer. But the writing is on the wall and it confirms a good future for thin asphalt surfacing products.

effective alternative to traditional road maintenance treatments."

The pace of development of Nynas high performance binders for application in thin layers was accelerated in the late 1990s by the introduction of performance related specifications. This allowed suppliers greater development freedom than recipe-based specs.

The performance-based Clause 942 (Thin Surfacing) of the Specification for Highway Works also transferred risk to suppliers and ensured two-year trials under traffic would have to be demonstrated before HA approval was awarded.

Coupled to this is the Highway Authorities Product Approval Scheme (HAPAS), which is administered by the British Board of Agrément for the HA and CSS. Around 20 proprietary thin surfacing systems are currently being tested under HAPAS, which will replace the HA's approval system when it is fully established.

The HAPAS guidance notes for approval of thin surfacings categorises products into three groups related to performance to aid selection for clients. Type A is for systems of less than 18mm deep, type B products are between 18mm and 25mm in depth, and type C covers 25mm to 40mm thicknesses.

These categories have been differentiated to take account of the many applications of thin surfacings, which are laid in 10mm layers in some cases. Performance requirements such as resistance to wheel-tracking are different for the various layer thicknesses. For instance, the thinner category of materials is generally for restoring surface characteristics only.

Thin surfacing materials, coupled with performance testing and analytical pavement design, are broadening the asphalt industry's offer of engineered solutions to client's infrastructure maintenance and development needs.