

# UL-M test pass

**The low noise characteristics of Tilcon North's thin surfacing material are attracting new customers – including Japanese car producer Nissan**



Motor car development is being given a helping hand by one of the new generation of asphalt products, laid by Tilcon (North) Limited's contracting department on a vehicle test track. Development engineers from car manufacturer Nissan's European Technology Centre in Sunderland were so impressed by the low noise characteristics of Tilcon's UL-M thin bonded structural overlay system on the A1 Gateshead Western Bypass that they reckoned it was just the thing for their test track.

Tilcon North's Quality and Technical Manager David Rockliff takes up the story: "Conventional surfacing materials on the test track were found to generate so much tyre noise that they were disguising unwanted noises in the cars. Apparently, Nissan hit on UL-M as the solution after some of their managers were impressed by how quiet the Gateshead Western Bypass surface was.

"At first their development engineers used the bypass to evaluate the noise characteristics of their vehicles. Later they awarded us a contract to resurface the test track at their European Technology Centre in Sunderland."

Reduced tyre noise from the indented texture of the UL-M thin surfacing – up to 3dbA less than conventional hot rolled asphalt surfaces – apparently makes it easier for the vehicle development engineers to monitor noise from the engine, gearbox and



*Laying ULM to achieve a durable, quiet surface of high skid resistance*

suspension components.

The new surface also has a superior surface profile. A Nissan spokesman explained: "Whilst UL-M reduces overall noise inside and outside the car, it sometimes highlights noises from the engine or transmission which are normally suppressed by the level of road noise.

"To ensure such noises or vibrations can be detected and designed out during vehicle development, Nissan require a quiet and smooth surface on the Sunderland test track. Tilcon North's UL-M is the ideal surface. As an additional benefit, UL-M's improved wet grip performance over the hot rolled asphalt which it replaced will improve Nissan's brake performance development capability." Over 2,000 tonnes of UL-M were laid on Nissan's test track and handling pad, all to an exacting tolerance of 96% of results within  $\pm 2$ mm.

Achieving sales for the company's UL-M thin surfacing material because of its noise characteristics has come as a surprise to Tilcon North. The material has several other advantages which an increasing

number of highway engineers are coming to realise. In particular, it allows surfacing without chippings, and allows roads to reopen quickly after works.

Tilcon North's Contracting Director Basil Larter said that after four years of laying UL-M he was a real fan of the product. "It's technical qualities are superb and the speed of the laying operation is very impressive," he says.

"Overlay contracts now using thin surfacing against hot rolled asphalt can be complete in about a third of the time without the need for difficult traffic management arrangements associated with hot rolled asphalt and the feed procedures of pre-coated chippings to the chipping machine."

Also, a major spin-off is the vastly reduced level of tyre noise, a feature not initially a selling factor of the product, he says. "But the noise reduction element is proving to be a real winner, especially in urban areas where some customers are now specifying thin surfacing simply for its quiet qualities."

UL-M also offers a smooth ride and reduced spray on wet roads.

Griptester tests have also demonstrated good skid resistance. Durability characteristics are high as would be expected with a product using a polymer modified bitumen, and the material has higher resistance to wheel track rutting than HRA. It is more durable than dense macadam.

Tilcon North has led the market with thin surfacings in the north of England, and has been selling it here under licence for four years. Some 500,000 square metres of UL-M have been laid by them so far. It was developed by French surfacing contractor Jean Lefebvre over 10 years ago.

David Rockliff explains: "It took us three years to gain acceptance of UL-M on our trunk road and motorway network despite its long track record in France. The M6 in Cumbria was the first motorway we used it on, which is the biggest application so far, some 90,000 square metres."

The material is in demand by toll road operators in France – where about 40% of the toll road network surfaced with UL-M or similar thin surfacings – as carriageways can be resurfaced quickly every ten to 12 years. In the UK demand is heaviest from local highway engineers who place an increasing premium on minimum traffic disruption, but the PFI roads market is seen as a potential user of the material.

The A1 Gateshead Western Bypass, which so impressed Nissan, is a major UL-M success for Tilcon North, one which allowed its ease of use to be proven. This is the busiest stretch of road in the north east and any delays on it cause major disruption to local and trunk road traffic.

Tilcon's £950,000 contract with the Northumbria Trunk Road Agency was to reconstruct selected parts of the carriageway as well as resurfacing with the UL-M thin bonded structural overlay system.

Tilcon's Contracting General

Manager Martin Riley said: "We were not able to place the first cone until 8.30pm, each night and the traffic had to be placed into a full contraflow before any plant could access working areas. Each morning the full carriageway had to be handed back for normal use at 6a.m., an effective working shift of eight hours."

All materials were mixed and batched from Tilcon's Blaydon coating plant. Because of the higher laying speeds possible some 70,000 square metres of carriageway was renovated in two weeks less than it would have taken with hot rolled asphalt and 19 days ahead of programme.

UL-M is now proven as a suitable road maintenance solution in a wide range of urban and rural situations from minor roads to motorways. It is laid to a nominal thickness of 22mm – with structural strength equivalent to the same thickness of hot rolled asphalt wearing course – although a regulating thickness of up to 50mm can be laid if necessary. It can also be tailor made for particular applications.

"In our laboratories we concentrate on getting the composition of the mix right although we tend to use only our own Harden Red dust which is very carefully controlled to ensure consistency. The mix is carefully designed and uses a high proportion of 10mm single sized crushed rock chippings with a cubical shape," David Rockliff says.

"A coarse aggregate with a PSV to suit the customer's requirements and crushed rock fines provide a stable mechanical interlock between particles. A consistent gap grading ensures good surface texture with a rich bitumen filler mortar for durability."

This tight control is supported during production and on site by ISO 9000 quality systems, both registered by BSI Quality Assurance.

*UL-M is proving a major success on Tilcon North's resurfacing contracts*

