



Tackling noise pollution

The noisiest roads in Britain

Melissa Berry

The transport research laboratory TRL, is an independent organisation, which looks at the latest technologies in car and road manufacturing. Researchers are working with the department of transport, to identify the noisiest roads in Britain. They operate a machine called triton, which measures tyre noise on road surfaces. So far, the machine has travelled and analysed two thousand miles of British road.

Steve Phillips, TRL

There's a tyre located in a sound proof chamber at the back, the tyre measures in the wheel track where most of the noise is generated. We've got a bank of microphones around this tyre, so as Triton rolls along the road we can measure the noise as it changes, as it runs over the different types of road surfaces. Now, you might think, well Triton on its own can measure the noise that's going on so do we need anything else. The problem is there is that, because noise is related to the speed, Triton has to measure a number of different speeds to get, you know build up the complete profile of how the noise is changing. To be truly accurate, it also has to measure with a number of different tyres. Because one tyre might not reflect how the noise is changing on the different surfaces.

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The Triton method is time consuming. The test depends on tyre and speed, confusing the comparison between road surfaces. Now TRL has come up with a new system, which simply monitors the noise absorption of a road surface, and allows for much clearer comparisons.

Steve Phillips

What we did was develop this new system, the myriad trailer, which mounts a microphone and a speaker on the trailer, which we can drive along the road's surface, firing pseudo random sound pulses at the road surface, measuring the reflections that come back, bit of signal processing, and we can actually measure the sound absorption in situ.

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The advantage of this technology, is that it could provide the clearest and most accurate data on the state of Britain's roads. But the Transport Research Laboratory, is looking at the qualities of a variety of different road surfaces. Hot rolled asphalt is the surface that most people associate with motorways. It's the surface that covers most of the UK motorways at the moment. It's tended to be used, because it uses fairly small amounts of the most high quality aggregate, you know the stone that we use to improve the skinning resistance. However it's clearly not the quietest, and so there's a lot of road surfaces that have been developed recently, to lower the noise levels on the motorway network. One of these is stone mastic asphalt, or SMA, which is a very very dense mix of road surface, tends to use a slightly smaller chipping size, and it's developed to be resistant, so it stands up to trucks in our summers, and it generally has very very low noise levels. The alternative, there's a range of, for example thin surfacing, it's like the colsoft that we have on the test track. One aspect of the colsoft, which is particularly interesting is that it contains crumb rubber, within the mix of the material, very very fine particles of recycled tyre are actually incorporated into the mix, and it's not known yet whether this actually provides any additional noise benefit, but it certainly uses up some of the tyres. The one down side of materials such as colsoft, which contain you know this porosity, is the fact that they do tend to clog up over a period of years. So they tend to lose a bit of their noise reducing properties, and therefore they often have to be maintained, and replaced slightly earlier than conventional dense surfaces.