

Ringway

Asphalt additive arrives to shrink carbon footprints

Efforts to cut carbon dioxide emissions are being boosted by an asphalt additive introduced to the UK by Ringway's specialist product developer Jean Lefebvre.

Highway authorities have in their sights a variety of suppliers to help them in reducing 'carbon footprints' – their activities' overall contribution to emissions of carbon dioxide – including those from the asphalt sector. Asphalt production produces considerable amounts of heat and CO₂, but one group of suppliers has technology well progressed to help authorities meet targets to reduce CO₂ emissions.

This year Ringway's specialist product developer Jean Lefebvre is introducing to Britain a carbon busting product. Aspha-min is a synthetic additive that reduces the temperatures and fuel needed in the process of mixing asphalt while enhancing the performance of resulting mixes. It has already been used to good effect, reducing CO₂ emissions in Germany, France and North America.

Aspha-min is a synthetic zeolite. It holds a 20% moisture content and when heated above 100°C in contact with bitumen, it gradually releases water to create a lubricating effect, allowing reduction of mixing heat within an asphalt plant. From the results of studies in Germany, aspha-min allows asphalt mixing temperature to be reduced by 20-30°C, which equates to a significant reduction in CO₂ emissions.

Eurovia, parent company to Ringway and Jean Lefebvre, is also developing a new type of fume filter which will reduce CO₂ emissions further. But for now the emphasis from Jean Lefebvre is on demonstrating aspha-min's potential to the UK roads sector.

"Development of aspha-min dates back more than 10 years to when the European Union set industry targets to reduce CO₂ emissions by 15%," says Jean Lefebvre Manager Jonathan Core. "It was initially used in Germany in 2001 through a cooperative effort between Eurovia GmbH and the German materials specialist MHI."

The development has spread further from Eurovia's research centre near Bordeaux. Asphalts containing aspha-min are now used frequently on road projects in Germany and in France where Eurovia has set minimum targets for its regional businesses to use the

product. "It's also being used in North America," says Core. "Aspha-min asphalt starred in a trial of three products on a test track in the US and is now used by contractors Hubbard in Florida, Blythe in North Carolina and DJL in Canada."

In terms of UK use, aspha-min has so far been piloted on a car park at a Ringway depot using conventional mixing and paving plant. The coarse aspha-min powder was introduced in a similar manner to which fibres are commonly added to mixes. Aggregate was 'dosed' with 0.3% aspha-min by weight before being mixed with a bitumen binder.

"Ringway is really pushing on green products, to take a lead in improving the way things are done." Jonathan Core

"The aspha-min acts as a lubricating agent on contact with hot bitumen, temporarily increasing the volume of binder in the mix and reducing oxidation of the bitumen, making the asphalt more workable and less brittle. This means the mix can be compacted more easily and with better results in terms of less micro cracking and greater durability. Previously this was only possible at much higher temperatures," Core says.

Application temperatures have been recorded at 30-40°C lower than typical mixing temperatures, without any detrimental effect on workability, says Core. This gives Jean Lefebvre and Ringway further health and safety benefits to promote with aspha-min. Reduced temperature and odours from asphalt (with greater workability) should make for a happier workforce and public.



Adding 0.3% aspha-min by weight cuts mix temperature and CO₂ emissions



A highly workable and durable asphalt mix is achieved with a working temperature reduced by 30-40°C and significant health and safety benefits

“Ringway is really pushing on green products, to take a lead in improving the way things are done. It’s now a central part of the company’s strategy,” Core says. More ‘green’ products are on the way, including a new ‘Noxer’ sound barrier for application on road structures that can absorb harmful exhaust fumes. Meanwhile, Jean Lefebvre and Ringway are looking for the right site and contract and some decent weather for demonstrating the benefits of aspha-min to UK highway authorities.

The possibilities for use of aspha-min are very wide ranging. It has been confirmed that the additive can be used in any asphalt

including polymer modified surface courses. It is available in 25kg or 1t bags, or in fixed or mobile silos attachable to mixing plants and although the aspha-min patent is exclusively Ringway’s at present, this is likely to be licensed out to the wider industry, according to Jonathan Core.

Ringway and its Infrastructure and Specialist Services divisions work for a good number of different authorities and contractors, so aspha-min could be supplied throughout the UK.

“There will be a modest extra cost per tonne on the asphalt price, but there are counter savings to be taken into account,

including wear on plants and overall reduction in damage to the environment from less oil consumption and emissions,” Core says. “It is currently difficult to put a price on this, but importantly, local authorities and the private sector are going to be looking at carbon footprints and targets for reducing carbon consumption and emissions. Local authorities should be encouraging use of aspha-min and other products beneficial to the environment.”

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JEAN LEFEBVRE AND RINGWAY — A RELATIONSHIP EXPLAINED

It could be confusing, the relationship between Ringway and Jean Lefebvre, as it was originally the latter that purchased the former. However when Jean Lefebvre became part of Eurovia, which is itself a subsidiary of the French construction giant Vinci, it was Ringway that was selected to be the lead name in the group’s UK activities.

Jean Lefebvre now sits as a specialist subsidiary of the Ringway Group, alongside Ringway Infrastructure Services, Ringway Specialist Services (RSS) and the group’s joint ventures. While the Ringway companies

provide term maintenance, contracting and a range of specialist highway services (including the surfacing experts at Ringway Specialist Treatments within RSS), Jean Lefebvre is the product specialist dedicated to transfer of technology from Eurovia’s research centre.

Jean Lefebvre is the licensee (and HAPAS certificate holder) for some well known brands. These include the thin surfacing UL-M, Gripfibre (the only HAPAS certified cold microsurfacing), the bondcoat Gripclean, Flexiplast (high strength flexible membrane) and now aspha-min, with more on the way.

