Foamix comes of age

On offer from Foster Yeoman is an increasingly environmentally friendly alternative to traditional hot mix asphalt.

Foster Yeoman has been busy developing its long established foamed bitumen product Foamix over the past six months or so, and is relaunching it as a bespoke permanent cold lay mix which allows an extremely wide range of recycled aggregates to be used. News that demolition wastes as well as road planings can be incorporated into the product will raise no eyebrows; but the prospect of being able to use residues left after the incineration of waste and industrial processes to produce a material which out performs hot mix equivilents might.

"We aim to be able to tailor a solution for a particular waste problem," says Duncan Grant.

The newly developed material will still be sold predominantly through contractors but the incorporation of a wide range of waste products will give Foster Yeoman more opportunities to work with specifiers and local authorities.

Foamix was developed originally by Fitzpatrick Asphalt and Mobil Oil in the late 1980s, and Foster Yeoman inherited the product when it acquired Maxwells, which had bought Fitzpatrick's asphalt business. Foster Yeoman has been working with BP to develop the product which since 1990 has been used in various applications such as road reconstruction, footpath and car park construction, haunch repairs and trench and patch reinstatement. It was the first material approved by HAUC for use as a permanent base reinstatement for footways and carriageways, while in Maxwell's ownership.

Low energy process

The material is made and laid cold using a lot less energy than a hot mix material. It provides a rut resistant base which can be immediately trafficked. Advantages can be cited In terms of its storage – able to be stored for a month – its handling and safety characteristics, all of which are common to cold lay products generally, but the high performance of Foamix is where Foster Yeoman believes it has a distinct advantage. Environmental and performance benefits look to be the strongest cards in the suit. Sales Manager Nick Foley says growing environmental awareness is one of the major factors behind the decision to invest in developing Foamix. "We have used road planings and plant waste in Foamix up until now, but recently we have carried out a lot of work on broadening the range of aggregates which can be incorporated into the material while maintaining quality. We can now offer a wide range of Foamix products to suit the customer's individual needs.

"Although foamed bitumens have been around since the 1950s we have done a lot of development work in the past six months introducing a wide range of secondary aggregates, industrial by-products and recycled waste." Foster Yeoman's updated versions of Foamix will shortly be submitted to HAPAS for approval in the new category of permanent cold lay materials.

Over 90% of the constituents of Foamix are recycled materials, so being able to use a wider range of aggregates than just road planings is a significant step forward on the environmental front. As it has a low density, Foamix uses up to 15% less material compared to hot mixes. Foster Yeoman says demolition materials like brick can be screened and crushed to provide a high quality base material. But the novel move is to incorporate other wastes into the product.

Local authorities are said to be expressing keen interest In

Waste from Edmonton incinerator is used in one of the most successful versions of Foamix.

Cores prove that Foamix strengthens over its lifetime.

Foamix because of the recycling potential in particular, and the prospect of a wide range of waste and byproducts of other processes being incorporated into the mix.

"Although the main product will use road planings for the foreseeable future," explains Technical Manager Duncan Grant, "we can use incinerated waste and sewage sludge and we are looking at coloured glass. We aim to develop Foamix to the point where local authorities can come to us with a waste problem and we provide an engineered solution by incorporating their waste in our material."

Incinerator waste has been blended with more traditional materials in trials to produce a foamed bitumen suitable for base course and other uses.

London Waste Ltd takes some 650,000t of domestic and light commercial waste from a consortium of London Boroughs to its Edmonton incinerator where Ballast Phoenix processes the municipal solid waste incineration ash to produce the major constituents for one of the most successful versions of Foamix.

Glass cullets – waste ground glass – is being tested. "Once the trials are finished we will have a better idea of what can be used, but we aim to be able to tailor a solution for a particular waste problem," says Grant.

"We will have a range of solutions with different feed aggregates. There are a lot of contracts in the pipeline for Foamix even without offering customers waste solutions, but there has been a high level of interest from London Boroughs and others with waste disposal problems. We have been surprised and encouraged by the many ideas put forward and it shows how seriously the problem of waste and possible solutions are taken."

Key to the success of a Foamix project is the compaction. "It can be laid in most weather conditions and no specialist plant or labour is needed, but proper compaction plant and rolling patterns are essential," says Grant. "The second layer can go on immediately after compaction of the first is finished. This is the only cold lay product available which is stable enough to take traffic immediately, with the application of a temporary surface treatment and the final surface is completed within 10 days. It can be laid in layers up to 250mm thick – we advise a 70mm minimum – so road construction can be rationalised by replacing roadbase and basecourse layers with a single layer of Foamix.

Tests on samples show Foamix out performs traditional materials.

Complete package

"One scenario would be for a customer to come to us with a waste problem and we offer a complete package including design, supply and lay."

Although Foamix handles like a granular material, initial strength is equivalent to hot mix roadbase and basecourse materials and ultimate strength is far greater. Tests on core samples taken after 90 days show Foamix and hot mix road base performing at similar levels. Cores taken after six years show a 40% increase in the strength of Foamix with the road base remaining close to its original level.

The A332 at Bagshot – before and after Foamix reconstruction.