

Hanson

Hanson's cold mix, cold lay asphalt offers a high performance alternative to traditional hot mix asphalts.

Keeping it cool

A cold lay asphalt that can be stored for up to six months with the same performance as hot lay 100 penetration bitumen asphalts sounds too good to be true. Not any more – Coldfalt can do exactly that, following considerable research and development by Hanson Aggregates.

Cold lay asphalts have a long history of use on the continent but have been seldom used in the UK. Continental asphalt plants are often few and far between which creates a need for products that can be stockpiled. The close proximity of hot lay asphalt plants in the UK meant that there was little need for cold lay materials in this country.

The introduction of the New Roads & Streetworks Act of 1991 changed all this. The act restricted the use of temporary reinstatement and called for permanent reinstatement methods and established an approval scheme for storable materials.

Hot lay or hot mix emulsion asphalts have been the traditional materials used in permanent reinstatement. However, such bitumen products can

quickly become unworkable due to the small temperature range in which the material can be laid and often result in a high wastage. Also the high temperatures can lead to safety and environmental issues and high energy consumption.

Hanson Aggregates Product Technology Department Technical Manager Jeremy Kemp says: "Before the New Roads & Streetworks Act cold lay asphalts were used in the UK. However, the act provided the impetus to improve the material and later for companies to gain Highways Authorities & Utilities Committee (HAUC) approval of their cold lay products."

In co-operation with bitumen specialist Colas, Hanson started on research and development of emulsion and breaking technology for cold lay, cold mix asphalt in the early 1990s. "We realised that cold lay asphalt could have not just an environmental and reduced energy consumption advantage over traditional hot lay materials but also result in less wastage creating a cost advantage too," says Kemp.

The result of Hanson's research and development is Coldfalt. Coldfalt is a cold lay, cold mix asphalt which can be manufactured with a storage life of anything between three and 15 days, or even up to six months if stored in tubs.

The material has undergone the HAUC product approval process and was fully approved in October 1998 for use on both trench repairs and surfacing to carriageways, footpaths and cyclepaths. The product has been approved for use as 6mm, 10mm and 20mm nominal thicknesses and testing at the approval stage indicated it could perform as well as hot lay 100 penetration bitumen asphalt.

Site inspection of Hanson's Leeds plant, which was the company's proposed production centre for the whole of the UK, and technical specifications for the production, handling and laying of Coldfalt were included in the two year long HAUC approval process.

"Coldfalt can be laid at atmospheric temperature, so there are no time restrictions on the laying process. Nonetheless, Coldfalt is subject to the same weather restrictions as more traditional materials in that it can't be used in wet or frosty conditions.

"The product's long shelf life allows it to be stored until weather conditions improve whereas hot lay asphalt would be wasted and a new batch required for another attempt," says Kemp. Compaction of Coldfalt is also easier than hot lay asphalts, taking only one or two passes instead of

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Jeremy Kemp

the six or seven passes required to compact conventional materials.

Hanson's cold lay asphalt uses specialist emulsions which suspend the bitumen in water using an emulsifying agent to maintain the suspension and stability during storage. The bitumen emulsion forms the binder for Hanson's cold lay asphalt and is designed to 'break' rapidly on application with the water content being released and subsequently evaporating.

Breaking of hot lay emulsion asphalt occurs when the material cools rapidly on laying but cold lay asphalts need to use a breaking agent to activate the breaking process. Coldfalt uses a pre-wet chemical as a breaking agent which is mixed with the aggregate before the emulsion is added.

Consolidation of Coldfalt is triggered by the pre-wet causing the water content of the emulsion to evaporate allowing the freshly laid and compacted Coldfalt surface to be trafficked almost immediately.

"We initially developed Coldfalt as a product that was only suitable for short term storage. But as a result of requests by several customers for longer storage periods we started to research the possibility of storing the product in tubs," says Kemp. Testing and analysis showed that Coldfalt could be stored for up to six months with no deterioration in quality allowing customers to buy the material in bulk for storage in tubs to use as it is needed.

"Our customers currently undertake the tubbing themselves but we are developing plans to sell Coldfalt in tubs which we hope will widen the market for the material.

"At the moment we are concentrating on establishing a niche for the use of Coldfalt for trench repairs but we intend to market the product for carriageway surfacing in the near future," says Kemp.



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1. Coldfalt can be stored for up to six months and has the same performance as hot lay 100 penetration bitumen asphalt.



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2. Coldfalt is ideal for not just trench repairs but for surfacing carriageways, footpaths and cycleways too.



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3. Coldfalt can be compacted in one or two passes making it easier to use than traditional materials.