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Bioasphalt with lignin in Zeeland

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Bioasphalt for roads in Zeeland, a Dutch province, is being developed by Wageningen UR Food & Biobased Research, the Asfalt Kennis Centrum (Asphalt Knowledge Centre, AKC) and the company H4A from Sluiskil (NL). Zeeland Seaports is a project partner with interest in potential applications for the asphalt.

Lignin from plants in asphalt

Fossil bitumen – the main 'glue' in asphalt roads – is replaced by the biobased adhesive lignin in this innovative bioasphalt. Lignin is a natural adhesive material which gives structure to all kinds of plants and trees and is, for example, an important component of straw. The first specimens of asphalt concrete based on lignin were recently created and the involved partners are busy testing and optimising its properties.

Benefits for the environment and noise levels

Lignin can replace fossil bitumen (currently made from petroleum in a process which releases a great amount of CO2), substantially reducing the environmental footprint of asphalt. It is also expected to improve functional properties of the asphalt, such as rolling resistance, and to make roads quieter. Various governments and companies have already shown a lot of interest in this promising development.

Biobased applications in infrastructure

This product is the result of the Biobased Infra project, established by NV Economische Impuls Zeeland together with Grontmij and Wageningen UR Food & Biobased Research. The project comprises various forms of cooperation on applying biobased (green) materials in infrastructure.

In addition to the use of lignin in asphalt, Zeeland Seaports, Cargill and Wageningen UR Food & Biobased Research also wish to chart possible sources of lignin-rich biomass streams in Zeeland and beyond. The two-year project also involves the realisation of a road or parking space with lignin asphalt by the partners involved in the second year (2015). This will test the functional properties of the bioasphalt in practice.

The Biobased Infra project also includes work on concrete that is reinforced with biofibres and the development of products from prunings, verge grass and the like.

Provided by Wageningen University