

6th live session of [Focus Materialchemie](#) – Wednesday, **24.05.2023** 16:00 – @ [Seminarraum Lehar 01](#)
(TU-Wien, Getreidemarkt 9, BC, OG. 01, room A46) – join us on [ZOOM](#) (ID: 983 0066 2349)

The impact of field ageing on the chemistry of bitumen

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Bitumen is an important construction material mainly used as a sealant in roofing membranes and as a binder in asphalt pavements. Due to its organic nature, it is prone to environmentally induced changes initiated by reactive oxygen species (ROS), solar radiation and heat. Those factors cause the deterioration of most bituminous products over their life span, resulting in material failure. However, the ongoing molecular processes are still poorly understood due to the complex nature of the material, being a mixture of up to 105 different molecules. In our studies, we show how systematic use of spectroscopy (NMR, EPR, Infrared, Fluorescence, UV/VIS) and special ageing devices unravel hidden ageing processes and help to determine the impact of various atmospheric contributors on the degeneration of bituminous materials. With that, a robust foundation for the development of ageing prevention and recycling strategies is provided for the future.