

## Tuning the Properties of Phenolic Aerogels by Derivatization of Phenolic Precursors

T. Anklam, Cologne/DE, B. Milow, Cologne/DE, R. Tannert, Cologne/DE,

Thomas Anklam, German Aerospace Center, Linder Höhe, 51147 Cologne/DE  
University of Cologne, Department of Chemistry, GreinstraÙe 6, 50939, Cologne/DE

Aerogels are open porous nanostructured solids obtained by sol-gel, dissolution-reprecipitation, or polymerization processes followed by drying of the resulting wet gels. They can be of organic or inorganic nature, stiff or flexible, translucent or opaque, hydrophilic or hydrophobic and are known for their remarkable properties such as low densities, low heat conductivities, high porosities, high specific surface areas and low sound transmittance.<sup>[1]</sup> The most prominent example of an organic aerogel, belonging to the phenolic aerogels, is the resorcinol-formaldehyde (RF) aerogel.<sup>[2]</sup> The phenolic nature of RF and phenolic aerogels in general renders these materials hydrophilic, a factor that partly limits their commercial use.<sup>[3]</sup> In order to address this issue, we report on the condensation of alkoxy-substituted phenols with formaldehyde, yielding alkylated analogs of phenolic aerogels. The influence of synthetic parameters like solvent, temperature and catalyst concentration as well as the alkyl chain length and the nucleophilic reactivity of the alkoxy-substituted phenols on the properties (e. g. surface and pore characteristics and wetting behavior) of the resulting aerogels are presented.

References:

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