

Success story



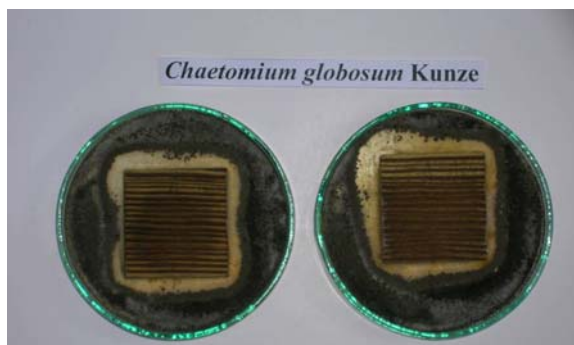
Wood Technology Institute, Poznan, Poland

Ionic liquids – new generation wood preservatives

➤ As a result of several years' primary and application research on ionic liquids – a new generation of quaternary ammonium salts, especially their effect on wood and micro-organisms destroying lignocellulose, the Wood Technology Institute (together with the Chemical Technology Department at the Poznań University of Technology) has developed new biocides. These include so far not described alkylammonium, alkylimidazolium and alkylpyridinium derivatives with an environmentally-friendly anion as well as 'gemini' salts with intensified biocidal properties against Basidiomycotina and Ascomycotina



Research the effectiveness action of ionic liquids on *Pinus sylvestris* L. wood against *Coniophora puteana* Schum(Fr.:Karst) – *Basidiomycotina* according to EN 839



Research the effectiveness action of ionic liquids against mould fungi according to the Building Research Institute Instruction No 355/98

➤ The Wood Technology Institute was involved in multi-aspect biological research applying wood-dyeing Basidiomycetes and moulds (Deuteromycotina). The innovative character of the suggested solutions lies in creating stable and sustainable, deeply wood-penetrating preservatives of specific properties with respect to micro-organisms responsible for wood degradation but at the moment of (insignificant) wood leaching easily degradable by the microflora in soil and water.



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➤ *Research on the remaining ionic liquids in soil tests confirmed the thesis of a biodegradable character of these structurally complex biocides. Introducing to the environment quaternary ammonium salts anions like nitrates or propionates facilitates safe application thereof.*

➤ *Results of physical and chemical research on the effect of ionic liquids on material allowed to identify bonds of new biocides and wood which is indispensable for identifying application of ionic liquids in wood preservation.*

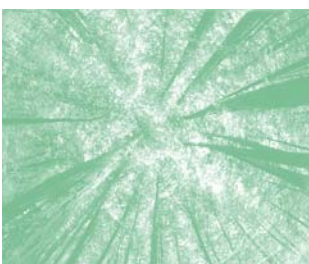


Pinus sylvestris L. wood has been preserved with an antifungal preparation based on ionic liquids, boron and copper compounds (construction wood, garden accessories).

➤ *This achievement allowed the Wood Technology Institute to maintain its top world position in the realm of research on the effects of ionic liquids on wood. The research results have been published in foreign magazines within the Philadelphia list i.e. Green Chemistry, Holzforschung, Wood Science and Technology.*

➤ *The ability of combining ionic liquids with other biocides e.g. boron or copper compounds is an offer of new generation antifungal preparations for the chemical and wood industry as well as building construction.*

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