

4th International Conference on **Nanotek & Expo**

December 01-03, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Screening of antimicrobial activity of biocide masterbatches

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Encapsulated nanodispersion biocidal systems (ENBS) based on biocide masterbatches for controlled release of active ingredients to extend the protection of surfaces has potential for the development of a new generation of more environmentally friendly products. ENBS will be utilised as progressive binders for organic coating systems and functional fabrics. Newly developed ENBS paints, varnishes, and other products can prevent damage caused by microorganisms. Antimicrobial activity of biocide masterbatches was tested on solid agar media for bacteria and fungi using 1) controlled inoculation and 2) airborne contamination. Both collection and environmental microbial strains were used for controlled inoculation. The ability for controlled release of active ingredients was tested using the agar well method. The study aim was to select an effective biocide masterbatch. In some cases, differences were found in the inhibitory activity of biocide masterbatches against the collection and environmental microbial strains. Of 17 samples of biocide masterbatches intended as progressive binders for organic coating systems and functional fabrics, three showed 100% biocidal activity against all test microorganisms under controlled inoculation. Only one sample had the ability of controlled release of active ingredients against all test microorganisms. The biocide masterbatch with the highest antimicrobial activity was a formaldehyde-free, modified melamine resin-based substance.

Biography

Katerina Klanova received her PhD degree from Komensky University in Bratislava, Department of Microbiology, Slovakia in 1994. She has been working at the National Institute of Public Health as a researcher in the field of microorganisms in the environment.

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