

13TH INTERNATIONAL CONFERENCE ON

ADVANCED MATERIALS AND NANOTECHNOLOGY

OCTOBER 26-28, 2017 OSAKA, JAPAN

The biological resistance improvement of painted stainless steel by changing paint composition and adding nanometal**Chi-Chi Lin, Wen-Yun Chen, Yun-Tai Lee and Yu Chun Lin**
National University of Kaohsiung, Taiwan

This study aims to compare the biological resistance of paint materials which contain different resin types (i.e., acrylic vs. polyvinyl acetate) and resin percentages (i.e. 20%, 30% and 40%) before and after nanometal treatment, as well as to explore the fungicidal effect of nanometals (i.e., Ag, Cu and Zn) to improve fungal resistance of paints. Six tested green paints are paints-A (20% acrylic resin), paint-B (30% acrylic resin), paint-C (20% polyvinyl acetate resin), paint-D (30% polyvinyl acetate resin), paint-E (40% acrylic resin) and paint-F (40% polyvinyl acetate resin), respectively. The *Aspergillus brasiliensis* or *Penicillium funiculosum* was inoculated on each sample and their growth was visually evaluated according to ASTM G21-09. In general, fungi could grow on paints no matter what kind of resin content they have. Paints with highest resin level showed obvious fungicidal ability even without treatment of nanometals. All test nanometals in this study helped improve the resistance of fungal growth on test paints except for the paints with 40% resin. The impact among various nanometal tested did not differ much in terms of final speed growth level. Fungal growth of *Penicillium* was a bit stronger than *Aspergillus* for each test under the same conditions. In the future, studies on more fungal species and combination of nanometals with other fungicidal agents (i.e., TiO₂) may be helpful finding the most efficient fungicidal additive with lower concentration, stronger fungicidal effect and less environmental impact.

Biography

Chi-Chi Lin has completed his PhD from The University of Texas at Austin. He is currently a Professor at National University of Kaohsiung in Taiwan. His research interests focus on emissions from various building materials and associated reactions between ozone and building materials, as well as the improvement of indoor air quality. He has published more than 20 papers in reputed journals.

chichilin@nuk.edu.tw

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