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### Anti-Biofilm coating with ionic liquids

#### Abstract:

This study aims to investigate whether the application of ionic liquids on the surface of materials can inhibit biofilms. Many ionic liquids are known to exhibit antimicrobial properties. On the other hand, biofilm properties are still poorly understood. Biofilm is a film-like substance formed by bacteria, water, and EPS, and its formation on material surfaces causes material deterioration and reduced machine performance. This occurs because when bacteria on the material's surface reach a specific concentration, they expel the polysaccharide all at once, which can be seen to correlate to some extent with antimicrobial properties. This led us to believe that the higher the antimicrobial property, the higher the anti-biofilm property. Previously, our laboratory has shown that mixing small amounts of several ionic liquids in aqueous solution in a loop-type biofilm reactor inhibits biofilm formation. In this study, we investigated the ability of quaternary ammonium salts, ionic liquids used as antimicrobial agents, to inhibit biofilm by mixing them into an alkoxysilane-based coating and applying it to the material's surface.

#### Biography

**Hideyuki Kanematsu** has completed his PhD at the age of 28 years from Nagoya University and investigated surface finishing from the viewpoint of electrochemistry and materials science in Nagoya University, Osaka University and NIT (KOSEN), Suzuka College. He was the former deputy president of the National Institute of Technology, Suzuka College. He has published more than 600 papers in reputed journals and has been serving as an editorial board member of many journals.