

## Improving hydrophobicity of alumina sheet using plasma treatment

*Thursday, June 9, 2016 2:45 PM (15 minutes)*

The lifetime of instruments alumina base that operate in an open field environment can be extended via improving their hydrophobicity. One of the solutions of this problem is coated a specific type of layer that can provide hydrophobicity and durable in field environment. Alumina sheets of square shape; 25 x 25 mm, are used as substrate. The alumina surface was activated using plasma treatment. The sheets were then spin-coated with UV-curable thiol-ene resin; consisting of (3-Mercaptopropyl)trimethoxysilane, Heptadecafluorodecyl methacrylate (HDFDMA), 2,4,6,8-tetramethyl-2,4,6,8-tetravinylcyclotetrasiloxane (TMTVSi), and Pentaerythritol tetrakis(3-mercaptopropionate) (PETMP). The hydrophobic TMTVSi and HDFDMA thin films were activated through Thiol-ene Click reaction. The wettability of coated alumina was carried out. The preliminary contact angle analysis has shown that thin film between HDFDMA and PETMP to be hydrophobic with water contact angle of greater than  $90^\circ$ . More work such as creating cross-linked thiol-ene network structure is underway to improve from hydrophobic to super hydrophobic.

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**Session Classification:** Session XXIX

**Track Classification:** Surface, Interface and Thin Films