

ANTI-FOG COATINGS USING THE SUPER-HYDROPHOBIC APPROACH

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ABSTRACT

Surfaces with water contact angles in excess of 150° have been attracting a great deal of attention. The work done here was in the design and development of an anti-fog coating. The hydrophilic as well as the hydrophobic approaches were investigated before developing the super-hydrophobic coatings. Accordingly, various phenomenon such as the adherence of snow or raindrops and friction drag are expected to be inhibited or reduced on such surfaces.

Hydrophobic properties are enhanced by increasing surface roughness. Super-hydrophobic surfaces require both appropriate surface roughness and low surface energy materials and numerous methods to attain these requirements have been demonstrated. We have made extensive use of nano-particles to help us in achieving the roughness that was needed to create these super-hydrophobic surfaces. Also low surface energy materials such as PTFE and THV were investigated as potential candidates for the matrix materials in which the particles could be embedded. The films created in our labs were characterized extensively using SEM(Scanning Electron Microscopy), Water Contact angles, Spectroscopic Ellipsometry, AFM(Atomic Force Microscopy) and UV-VIS Spectroscopy.