



Contact Angle Variation on a Copper Surface Treated with Self-Assembled Monolayer (SAM) of N-octadecyl Mercaptan

Yulong Ji^{1,2}, Hsiu-hung Chen², Qingsong Yu², Xuehu Ma³ & H. B. Ma^{1,2}

1. Dalian Maritime University, Dalian, China
2. University of Missouri, Columbia, MO USA
3. Dalian University of Technology, Dalian, China

Using n-octadecyl mercaptan solution of 0.0025 mol/L in ethanol and aqueous solution with 0.065 mol/L $K_2S_2O_8$ and 2.5 mol/L KOH, the wetting characteristics of the pure copper surface can be modified. Superhydrophobic self-assembled monolayer (SAM) of n-octadecyl mercaptan was coated on a pure copper surface which can result in a contact angle of 155 degrees. The copper plate with the superhydrophobic surface coating was then placed in an oven and heated from the ambient temperature to the targeted temperature (T), kept for thirty minutes, and cooled down to the ambient temperature in the air environment. The targeted temperature is very important, which directly affect the wetting characteristics of the treated copper surface. The wetting characteristics of the treated surface is characterized by the contact angle measurement. Results show that the surface wetting property can be modified from superhydrophobic to hydrophilic.

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