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# Thermally Stable Super-Hydrophobic Surface Creation

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### Thermally Stable Super-Hydrophobic Surface Creation

Thermally stable super-hydrophobic surface coatings are critical to applications in low gravity fluid dynamics, and in particular Leidenfrost effects. The challenges of manufacturing different super-hydrophobic coatings that are thermally stable, semi-transparent, and environmentally safe at desired operating temperatures is pursued in order to explore the applications of such coatings aboard spacecraft. A catalog of surface coating manufacturing procedures is tabulated with measures for static contact angle, thermal stability, and transparency. These quantities and methods serve as a foundation for both technology applications and follow on experimentation concerning low gravity fluid mechanics at the Portland State Dryden Drop Tower lab.

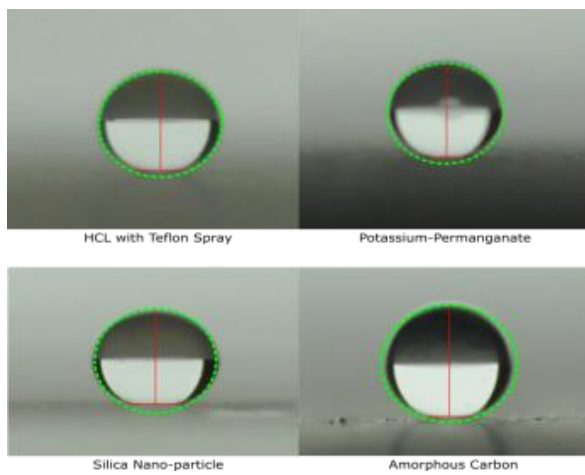


Figure (1a) Contact angle measurement images for all for surfaces

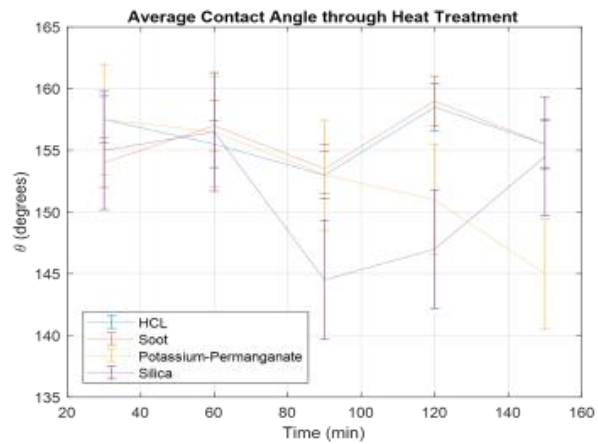


Figure (1b) Average contact angle through time during thermal stability experiment