

## Water and hexadecane impacting droplets behavior

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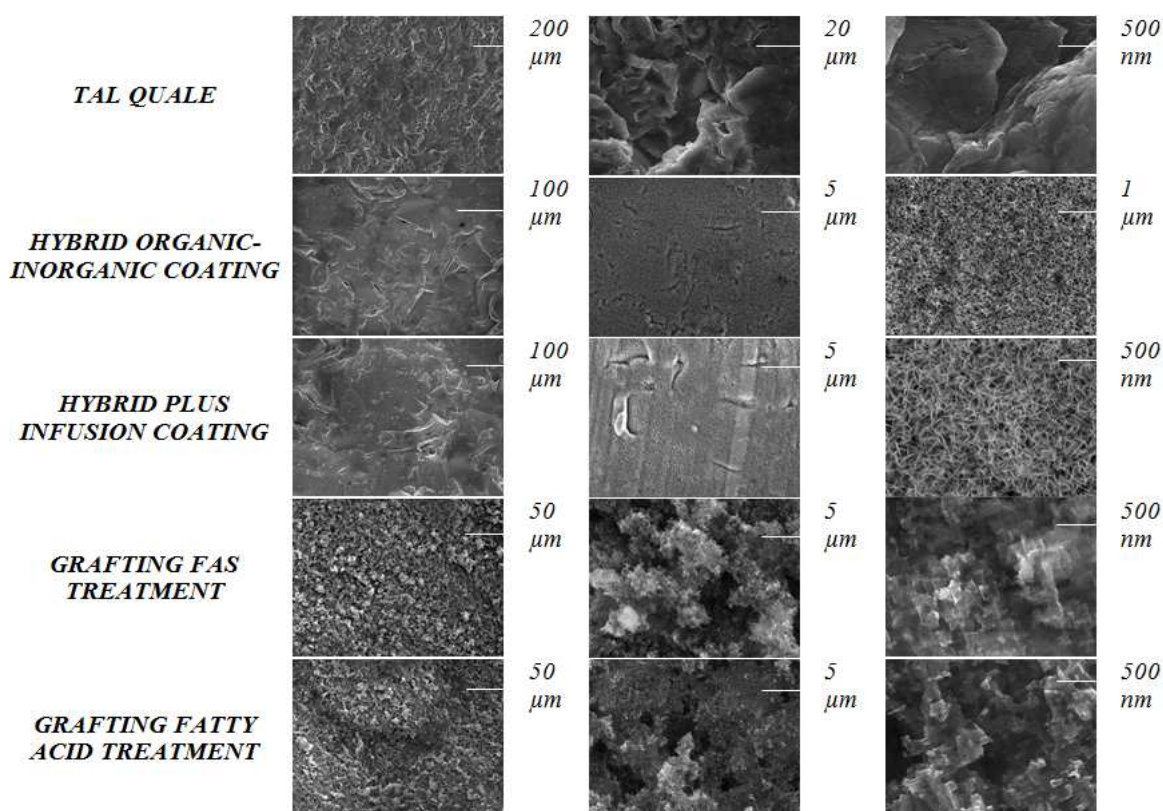
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The normal impact of water and hexadecane liquid drops onto solid and dry surfaces, with different wettabilities, has been studied experimentally using high-speed camera. The wetting behavior of aluminum foils tal quale, hybrid organic-inorganic, hybrid plus infusion, grafting FAS treatment and grafting fatty acid treatment, has been analyzed. Impacting droplets behavior on hydrophilic aluminum tal quale, superhydrophobic hybrid organic-inorganic, hybrid plus infusion, grafting FAS and grafting fatty acid surfaces are compared. Drop impact velocities in the range of 0-4 m/s are investigated. Quasi-static contact angle, roughness, and SEM analysis (Fig. 1) allowed relating the dynamic behavior of the surfaces with their wettability characteristics. The high-speed outcomes of water and hexadecane impacting droplets behavior on all the different surface types, the temporal evolution of the contact radius of droplets upon impact and retraction, and a drop rebound map are shown. In general, up to a speed of 1.5 m/s with hexadecane deposition always occurs for all surface types. At higher velocity, prompt splash and receding breakup are mainly present. With hexadecane rebound never observed even with receding contact angle about 110/120°.



**Fig. 1** SEM analysis images.