Micro-nanotextured omniphobic surfaces on aluminum and polyMER

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Abstract

Omniphobic surfaces are highly demanded for a wide range of applications in different industrial sectors, where polymer materials are gaining representability. Metallic material like aluminium is widely used in industry by itself and, at the same time, as protoptype moulding tool for plastic injection moulding. In these materials hydrophobic/oleophobic functionalities can be addressed through surface micro-nanostructure modification combined with chemical composition (through coating or additives). Surface micro-nanostructure must be defined through micro and nano features combination if optimum hydrophobic/oleophobic behaviour is targeted.

Aluminium surface modified through dislocation etching shows a very interesting omniphobic behaviour. Its replication on polymer surfaces seems to keep similar properties. At the same time, durability of such functionality is being addressed and will be presented as it is a critical issue for its applicability in industrial sectors.

References

[1] Mengying Long, et. Al. Colloids and Surfaces A: Physicochem. Eng. Aspects 507 (2016) 7-17

[2] Shan Peng, et. Al. Journal of Colloid and Interface Science 461 (2016) 273-284
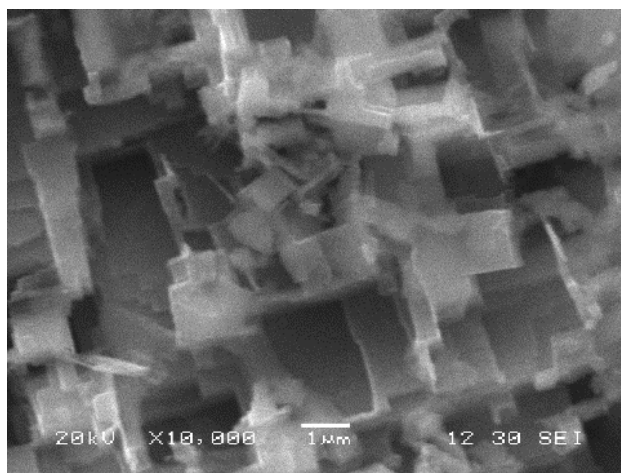
Figures

Figure 1: SEM image of the surface of etched aluminium

Figure 2: Consecutive images of droplet rolling on micro-nanotextured PC surface