***Supplementary Materials***

**The Effect of Poly(dimethylsiloxane) (PDMS) Binder in a Silica-based Superhydrophobic Coating on Mechanical Properties, Surface roughness, and Wettability**

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**A picture containing light

Description automatically generated**

**Figure S1:** Static contact angle image for a water droplet of 10 µL on coating-B

**(b)**

**(a)**

**A black sign with white text

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**Figure S2:** (a) and (b) shows the nanocomposite coating-B at different magnifications.

**Table S1: Average values of indentation results for 400 indentations performed to get the mapping images**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Coating-A** | **Coating-B** | **Coating-C** | **Coating-D** |
| **Reduced Elastic Modulus (GPa)** | 2.66 ± 0.11 | 2.32 ± 0.20 | 1.59 ± 0.14 | 1.24 ± 0.21 |
| **Hardness (GPa)** | 0.20 ± 0.02 | 0.11 ± 0.02 | 0.05 ± 0.01 | 0.04 ± 0.01 |

**Table S2: Surface roughness parameters along with static contact angle for the fabricated coatings**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Coating-A** | **Coating-B** | **Coating-C** | **Coating-D** |
| **Average Roughness (RA), nm** | 84.10 ± 2.2 | 105.97 ± 4.8 | 84.30 ± 3.3 | 52.54 ± 0.6 |
| **RMS Roughness (RRMS), nm** | 104.63 ± 1.9 | 132.80 ± 1.5 | 106.1 ± 3.1 | 66.72 ± 1.2 |
| **Surface Skewness (RSK), nm** | 0 | 0.16 | -0.20 | 0.27 |
| **Kurtosis (RKU), nm** | -0.32 | 0.17 | 0.29 | 0.14 |
| **Static contact angle, (0)** | 149 ± 1.0 | 155 ± 1.1 | 145 ± 1.7 | 114± 2.9 |