Electronic Supporting Information

**Valorization of mixed plastics waste for the synthesis of flexible superhydrophobic films**

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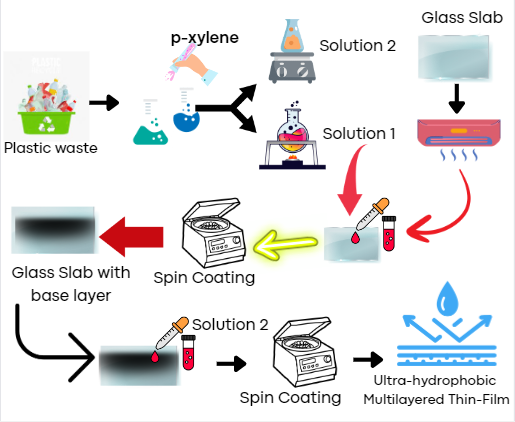


Figure S1: Graphical representation of methodology used in this study for fabrication of thin film.

A picture containing text, screenshot, remote control

Description automatically generated

Figure S2: Flow chart of production of superhydrophobic thin films.

Table S1: Contact angle measurements in HD-Blend and PP-Blend

|  |  |  |  |
| --- | --- | --- | --- |
| Thin Films | Contact Angle  (Droplet in contact with needle) | Contact Angle  (Droplet not in contact with needle) | Contact Angle  (Base layer) |
| HD-Blend | 155° ± 2° | 148° ± 2° | 108° ± 2° |
| PP-Blend | 167° ± 2° | 159° ± 2° | 108° ± 2° |

Table S2: RMS values obtained from AFM analysis of HD-Blend and PP-Blend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameters | HD-Blend Base | HD-Blend Top | PP-Blend Base | PP-Blend Top |
| RMS | 8 nm | 91nm | 27 nm | 228 nm |
| Max | 23 nm | 823 nm | 114 nm | 860 nm |
| Min | -28 nm | -518 nm | -138 nm | -1011 nm |
| Avg Deviation | 6 nm | 67 nm | 21 nm | 182 nm |

Video 1 : Dispensing of water droplet from the needle showing the surface is superhydrophobic and the anti-wetting property of the surface by repelling the water droplet even after forcing the droplet to the surface.

Video 2: The surface of the PP-Blend evidences the superhydrophobic and water repelling nature even after dispensing, dragging the water droplet to and from the surface.

Video 3: Video showing the superhydrophobic and water repelling property of the PP surface by tilting the surface to a 4o sliding angle.