Supporting Materials

Facilely spraying fabrication of highly flexible and mechanically robust superhydrophobic F-SiO$_2$@PDMS coatings for self-cleaning and drag-reduction applications

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**Figure S1.** Schematic diagram of synthesizing superhydrophobic F-SiO$_2$@PDMS coatings.

**Figure S2.** High-resolution C 1s of raw SiO$_2$ nanoparticles. The peak located at 284.8 eV corresponds to the standard C element. Also, it has been confirmed that the peak at 283.0 eV originates from the contaminant in measurement environment.
Figure S3. SEM images of prepared coatings with different silica content of 0, 0.22%, 0.44%, 0.66%, 0.88% and 1.76%, respectively.

Figure S4. The surface roughness of prepared coatings with different silica content.
**Figure S5.** Schematic illustration of water droplet adhesion measurement system.

**Figure S6.** Schematic illustration of the man-made stretching setup used to characterize wettability of superhydrophobic F-SiO$_2$@PDMS coatings after being stretched in the present study.

**Video Captions**

**Video S1:** Methylene blue-dyed water dropped on the treated SiO$_2$ particles and formed liquid marbles.

**Video S2:** Droplets can easily roll off the surface.
**Video S3:** A jet of water from syringe impacted the coatings and easily bounced off the surface without leaving a trace.

**Video S4:** The dust on superhydrophobic F-SiO$_2$@PDMS coatings can be easily taken away by continuous flow.

**Video S5:** The superhydrophobic coatings were repeatedly immersed in the dyed water, and they did not get dirty.

**Video S6:** Bare and coated “ship” were released simultaneously and moved to the finish line under tensile. It took less time for the coated one to reach the destination.

**Video S7:** The superhydrophobic coatings were stretched by 50% of its length and still sustained their water-repellent property.