Supporting Information

Liquid-Repellent Films Comprising Octamethylsilsesquioxane Selected Based on Three-Dimensional Solubility Parameters

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Evaluation of the durability of the Ni-P/OMS film against toluene. The Ni-P/OMS film was immersed in 50 mL of toluene (Wako Pure Chemical Industries Ltd.), one of the good solvents for OMS as shown in Table 1, for 1 week. After the Ni-P/OMS film was removed from toluene, washed with acetone, and dried naturally, the static contact angle (θ_S) of the water droplet (0.5 μL) on the film was measured.

Evaluation of the thermal stability of the Ni-P/OMS film. The Ni-P/OMS film was placed in an electric furnace (SSPH-101; Espec Corp.) and heated at 300 °C for 1 h in air. After the Ni-P/OMS film was allowed to cool naturally to room temperature, the θ_S of the water droplet was measured.

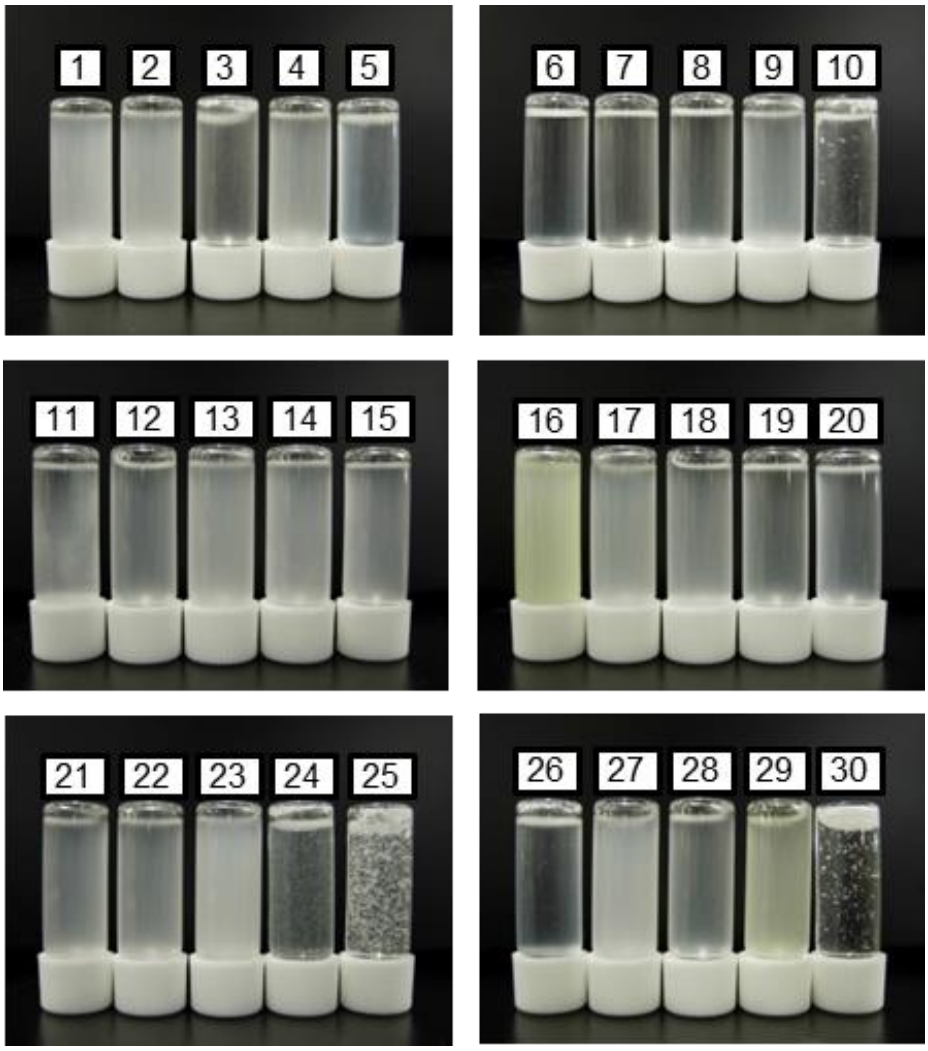

Figure S1. Results of the dissolution test of the OMS particles (10 mg) in organic solvents (2 mL). The organic solvents used in the dissolution tests are shown in Table 1.

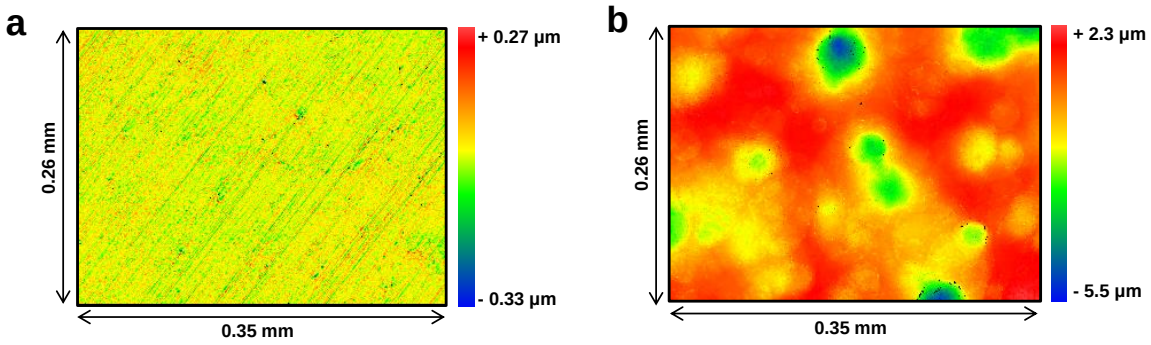

Figure S2. Scanning white light interferometry (SWLI) images of the surface of (a) the PTFE plate and (b) the Ni-P/PTFE film.

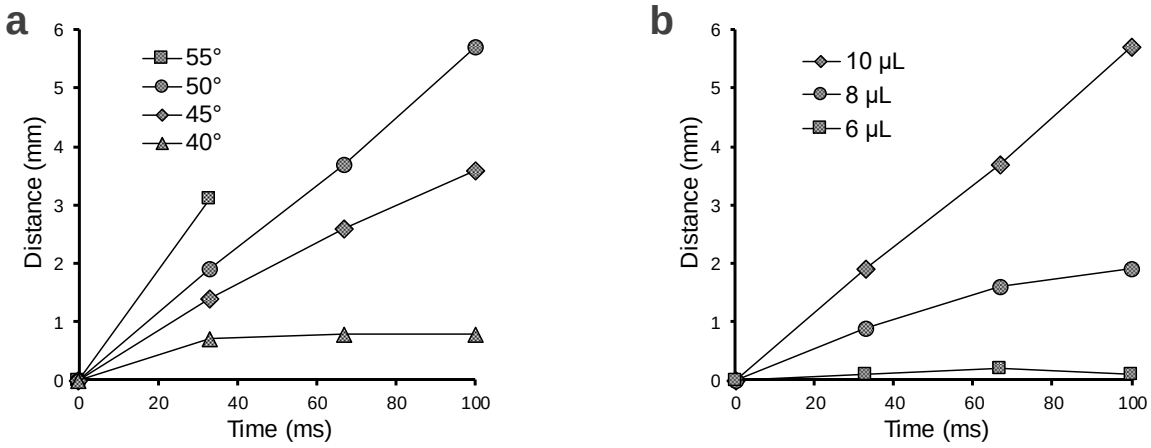

Figure S3. Variation of the sliding distance of the water droplet on the surface of the Ni-P/OMS film depending on (a) the tilt angle (the water droplet volume: 3 μL) and (b) the water droplet volume (the tilt angle: 50°). The initial increase of the distance at (a) the tilt angle of 40° and (b) the volume of 6 μL did not result from sliding, but rather from slight movement of the water droplet caused by the impact after release from the syringe needle.

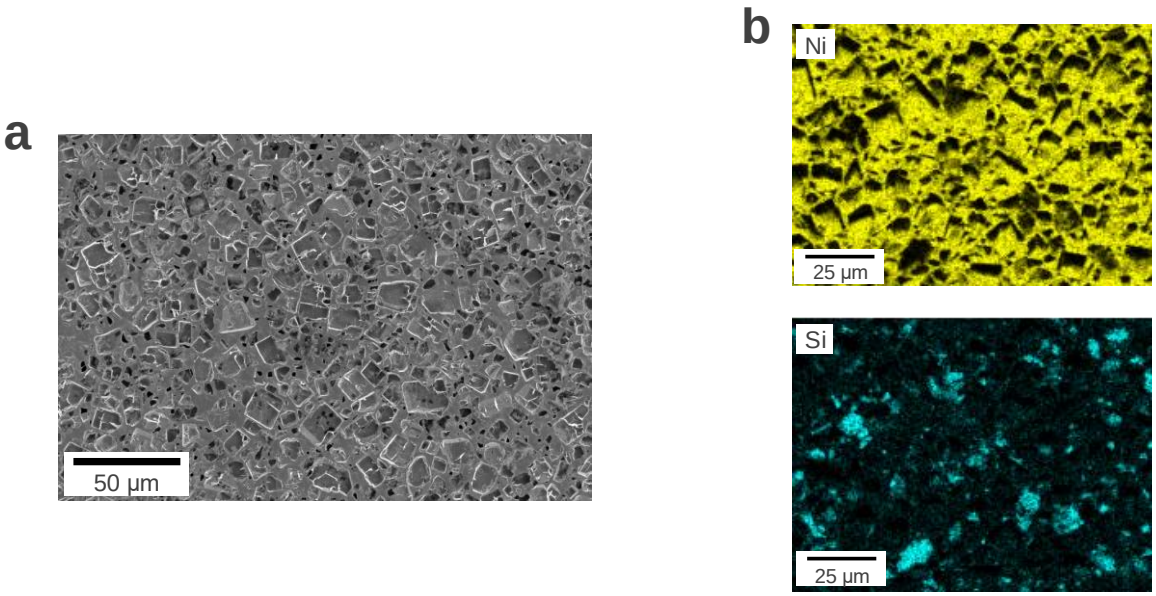

Figure S4. (a) Scanning electron microscopy (SEM) image and (b) energy dispersive X-ray spectroscopy (EDX) elemental distributions of Ni and Si atoms of the surface of the Ni-P/OMS film after heating at 300 °C for 1 h in air.

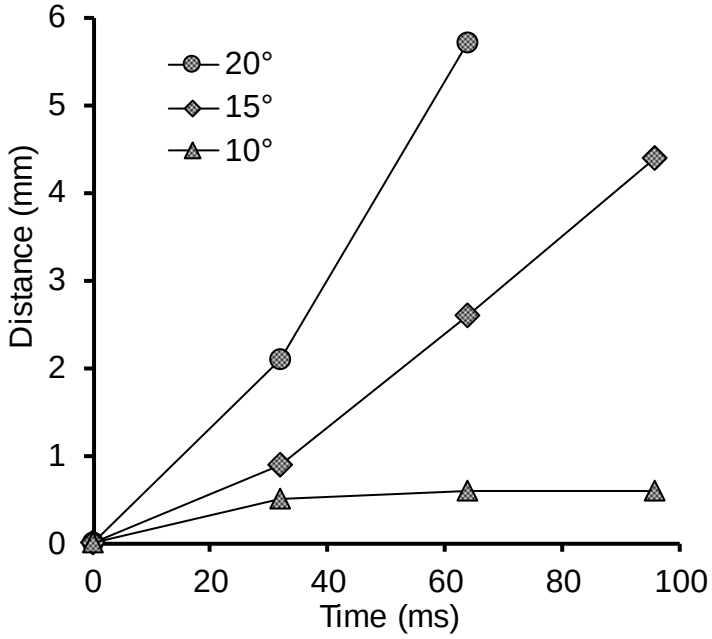

Figure S5. Variation of the sliding distance of the water droplet (3 μL) on the surface of PDMS/OMS film depending on the tilt angle. The initial increase of the distance at a tilt angle of 10° did not result from sliding, but rather from slight movement of the water droplet caused by the impact after release from the syringe needle.