Electronic Supplementary Material (ESI) for Soft Matter.

Supporting information

One-step laser etching bionic hierarchical structure on silicone rubber surface with thermic and acid/alkali resistance and tunable wettability

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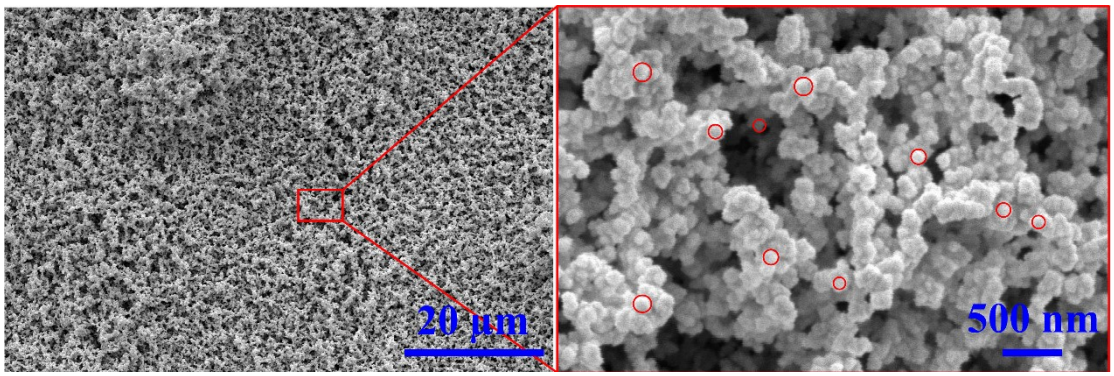

Fig. S1 SEM image of silicone rubber after 7 etching cycles.

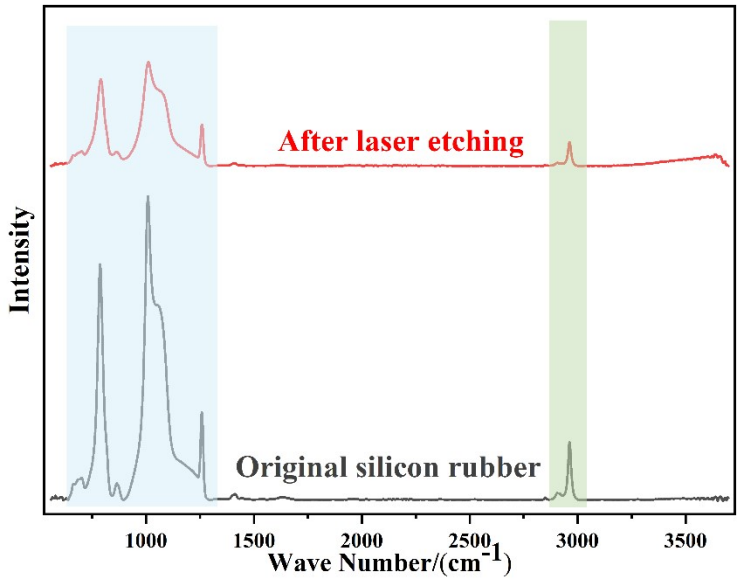

Fig. S2 The FTIR spectrum of original silicon rubber and modified surface

The fourier-transform infrared spectroscopy (FTIR) was used to analyze the chemical structures with a Nicolet iS5 spectrophotometer (USA).

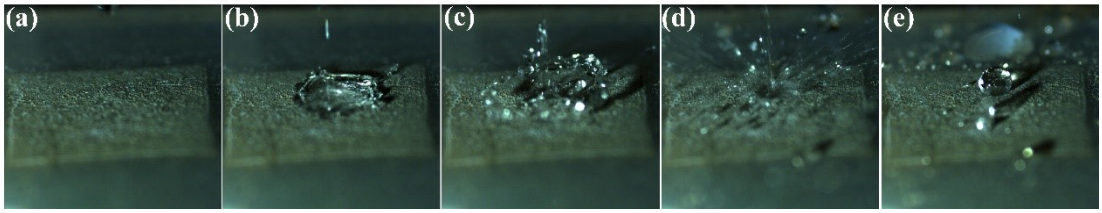

Fig. S3 Time sequence snapshot of water flow impacting the modified surface.

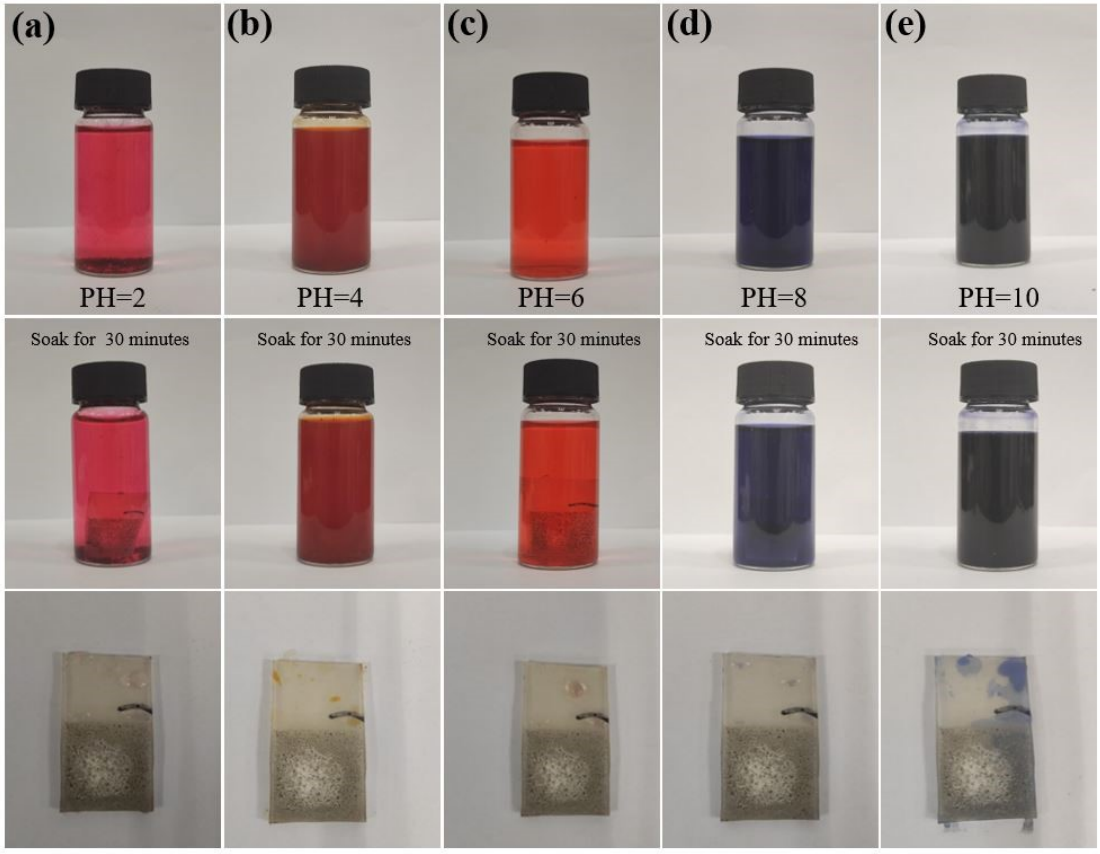

Fig. S4 (a~e) the acid and alkali corrosion resistance of modified silicon rubber for 30 minutes in solutions with PH values of 2, 4, 6, 8 and 10 respectively.

List of supporting videos

Video S1 shows the effect of water droplets contacting with pristine silicone rubber surface at speeds of 0.99 m/s.

Video S2 shows the effect of water droplets contacting with the modified surface of 1st etching cycle at speeds of 0.99 m/s.

Video S3 shows the effect of water droplets contacting with the modified surface of 3rd etching cycle at speeds of 0.99 m/s.

Video S4 shows the effect of water droplets contacting with the modified surface of 5th etching cycle at speeds of 0.99 m/s.

Video S5 shows the effect of water droplets contacting with the modified surface of 7th etching cycle at speeds of 0.99 m/s.

Video S6 shows the effect of water droplets contacting with the modified surface of 7th etching cycle through 1 min at dynamic pressure of 8.5 kPa.

Video S7 shows the modified surface is soaked in solutions with pH=2, and taken out after soaking for 5 s.

Video S8 shows the modified surface is soaked in solutions with pH=4, and taken out after soaking for 5 s.

Video S9 shows the modified surface is soaked in solutions with pH=6, and taken out after soaking for 5 s.

Video S10 shows the modified surface is soaked in solutions with pH=8, and taken out after soaking for 5 s.

Video S11 shows the modified surface is soaked in solutions with pH=10, and taken out after soaking for 5 s.