

Electronic Supplementary Information

**Surface modification and adhesive-free adhesion of
polytetrafluoroethylene (PTFE) and silicone gel
containing oleophilic SiO₂ powder by plasma treatment**

Erika Miyake,^a Misa Nishino,^a Yosuke Seto,^a Izuru Komatsu,^b Katsuyoshi Endo,^a Kazuya Yamamura^a and Yuji Ohkubo^{*a}

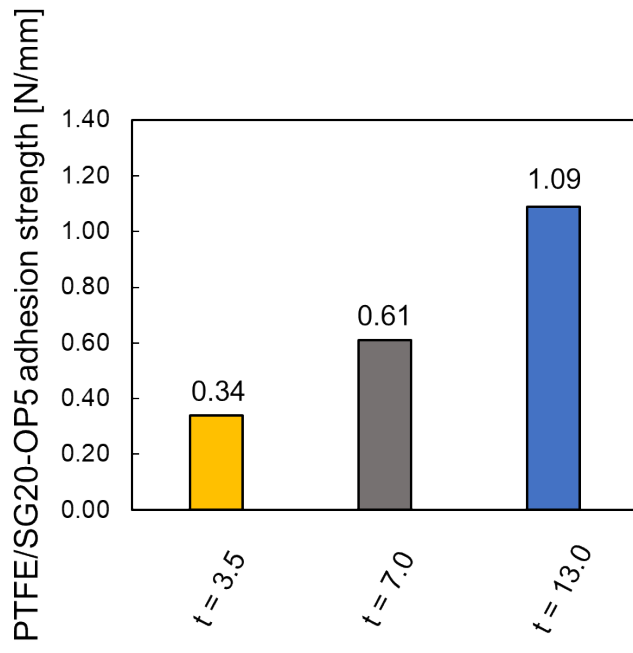
^a Graduate School of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan

^b Toshiba Corporate Manufacturing Engineering Center, 33 Shin-Isogo-cho, Isogo-ku, Yokohama 235-0017, Japan

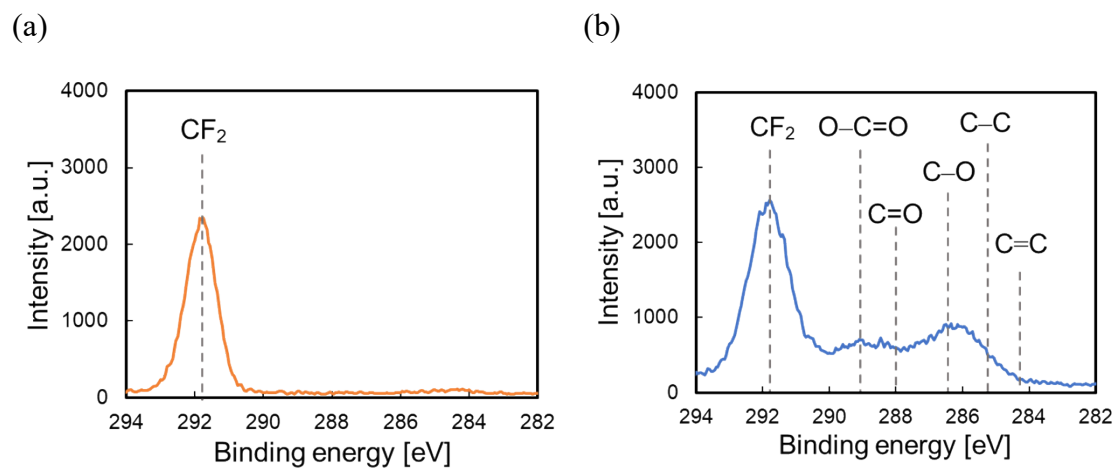
* Corresponding author email : okubo@upst.eng.osaka-u.ac.jp

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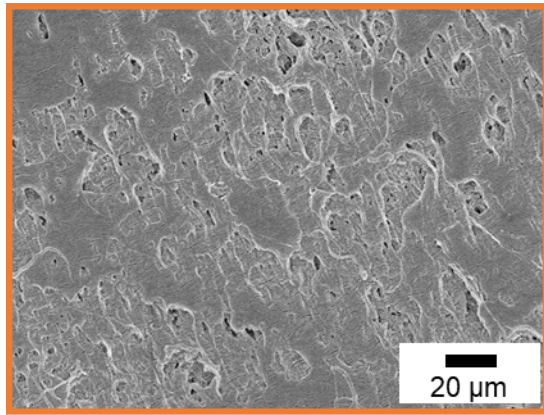


ESI-1 PTFE/silicone gel adhesion strength of PTFE/SG20-OP5 assembly with the different thickness.

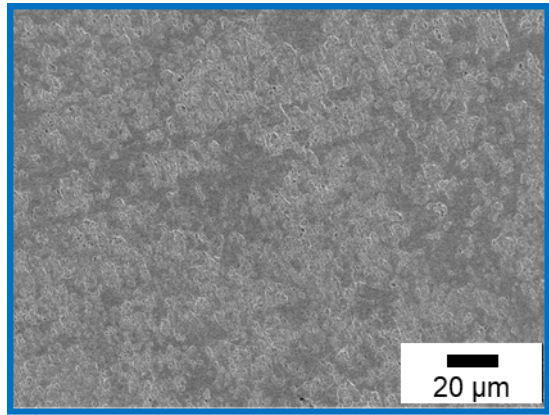


ESI-2 C1s-XPS spectra of the PTFE samples (a) before and (b) after heat-assisted plasma (HAP) treatment.

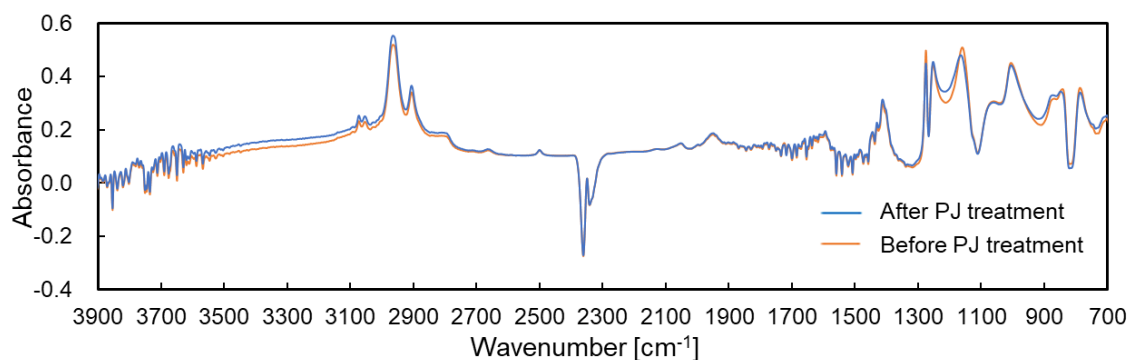
(a)



(b)



ESI-3 SEM images of the PTFE samples (a) before and (b) after HAP treatment.



ESI-4 FTIR-RAS spectra of silicone gel containing oleophilic SiO₂ powder before and after plasma jet (PJ) treatment. When FTIR-RAS measurement was performed for silicone gel containing oleophilic SiO₂ powder, noise was observed, and stable FTIR spectra could not be obtained. This was due to the presence of oleophilic SiO₂ powder, which scatters IR light and reduces the amount of light reaching the detector. In contrast, no noise was observed for FTIR-RAS spectrum of silicone gel non-containing oleophilic SiO₂ powder as shown in Fig. 5. Since noise makes it difficult to analyze the spectra of silicone gel, PJ treatment and FTIR-RAS measurement were performed for silicone gel non-containing oleophilic SiO₂ powder.