

Preparation and Characterization of Imogolite/Chitosan Hybrid with Pyridoxal- 5'-phosphate as an Interfacial Modifier

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Fig. S1. Picture of dry PLP-imogolite.

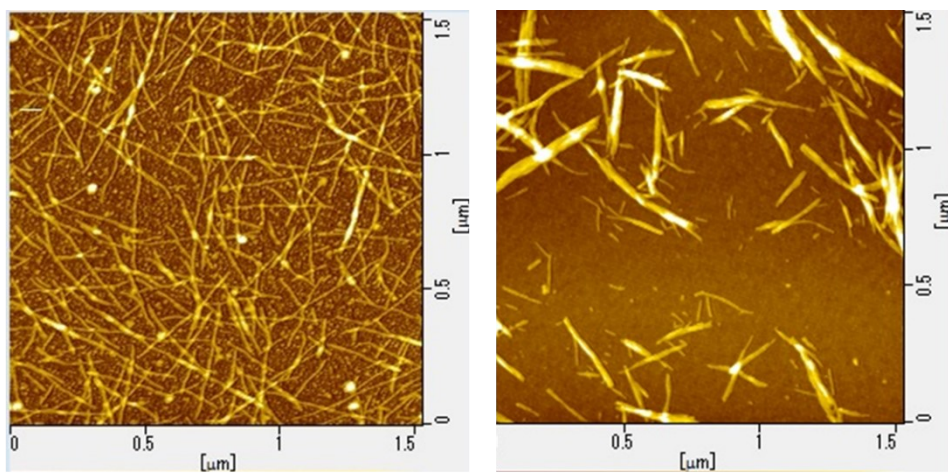


Fig. S2. SFM image of pristine-imogolite (left) and PLP-imogolite (right).



Fig. S3. Image of (a) pristine-chitosan, (b) 25 wt% pristine-imogolite/chitosan, and (c) 25 wt% PLP–imogolite/chitosan hybrid films.

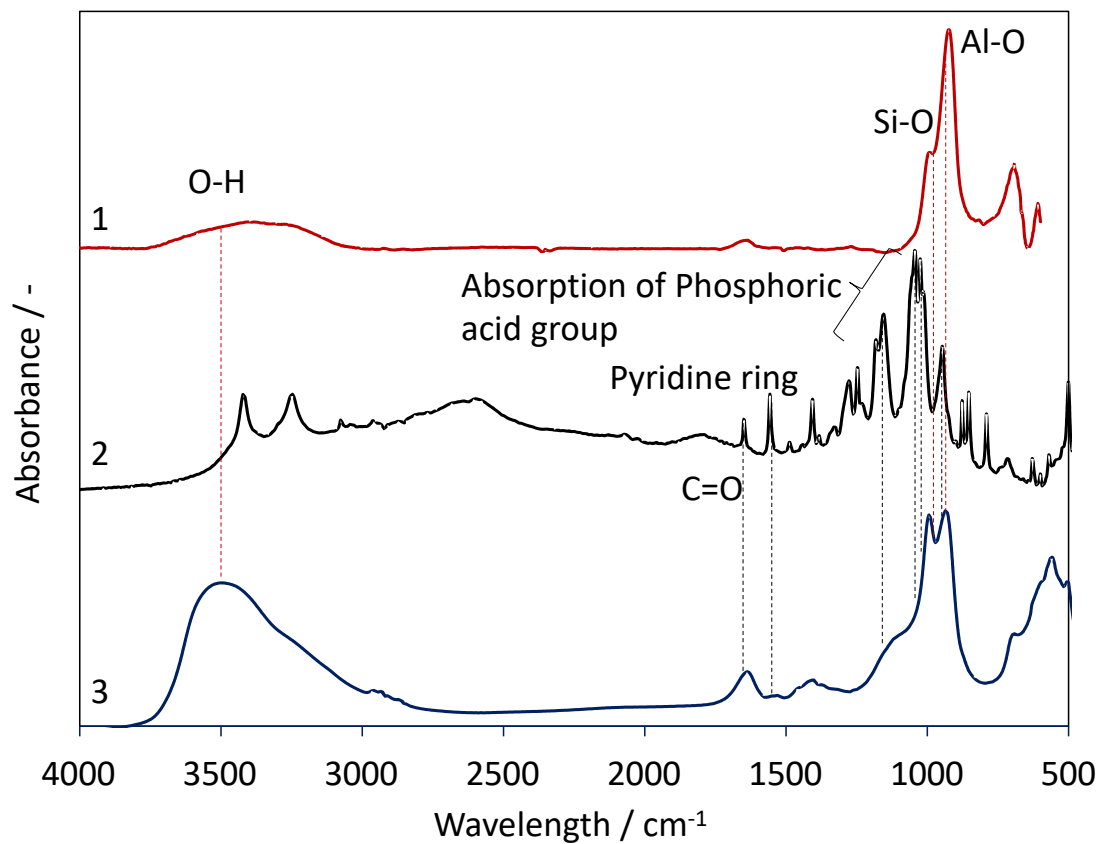


Fig. S4. FT-IR spectra of pristine imogolite (1, red line), pure PLP (2, black line) PLP-imogolite (3, blue line).

The amount of PLP adsorption (W_{PLP}) on imogolite was calculated from the following equation (1).

$$W_{PLP} = (W_{873K} - W'_{873K}) - (W_{393K} - W'_{393K}) \quad (1)$$

Where W_{873K} (72.2 wt%) and W'_{873K} (64.7 wt%) represent the total weight loss before and after PLP modification at 873 K, respectively. Therefore, the difference in total weight loss was 7.5 wt% before and after PLP modification. On the other hand, W_{393K} (90.1 wt%) and W'_{393K} (85.0 wt%) were weight loss of before and after PLP modification at 393 K due to evaporation of water (5.2 wt%), respectively. When PLP adsorbs on the imogolite surface, the amount of water adsorbed also changes. The amount of PLP adsorbed was obtained by subtracting the water-derived weight loss from the difference in total weight loss. The results confirmed that 2.3 wt% of PLP was adsorbed on imogolite.

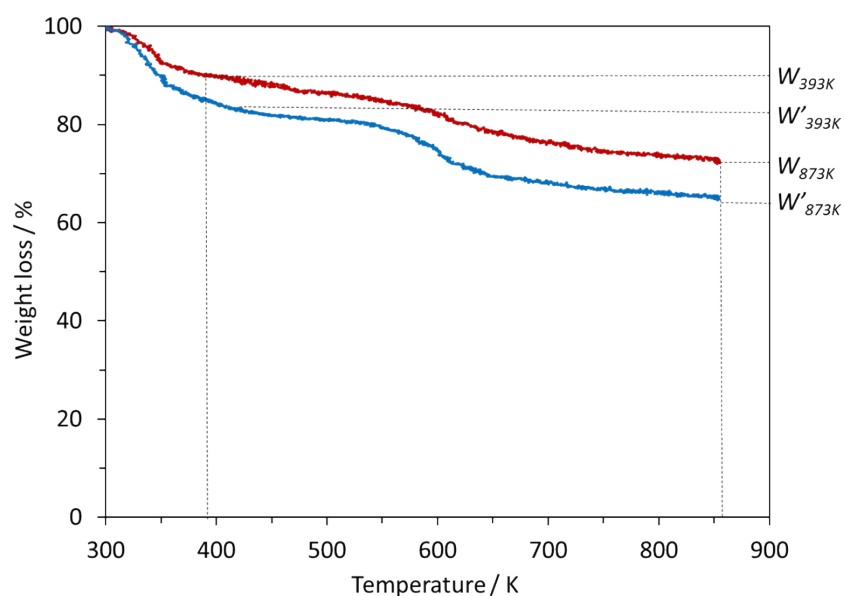


Fig. S5. Thermogravimetric analysis curve for imogolite before (red line) and after (blue line) PLP modification.

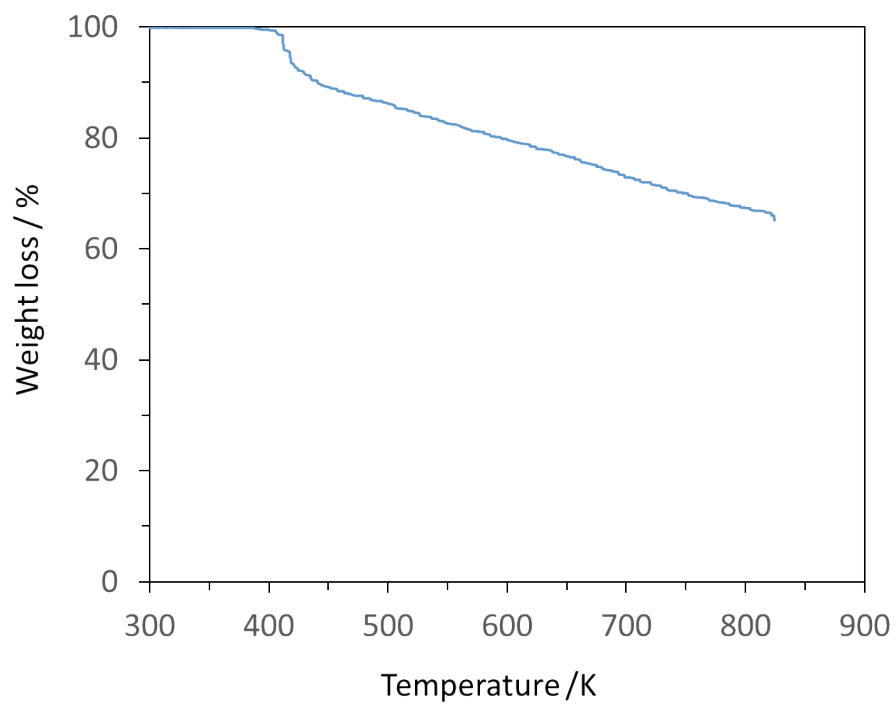


Fig. S6. . Thermogravimetric analysis curve for pure PLP.

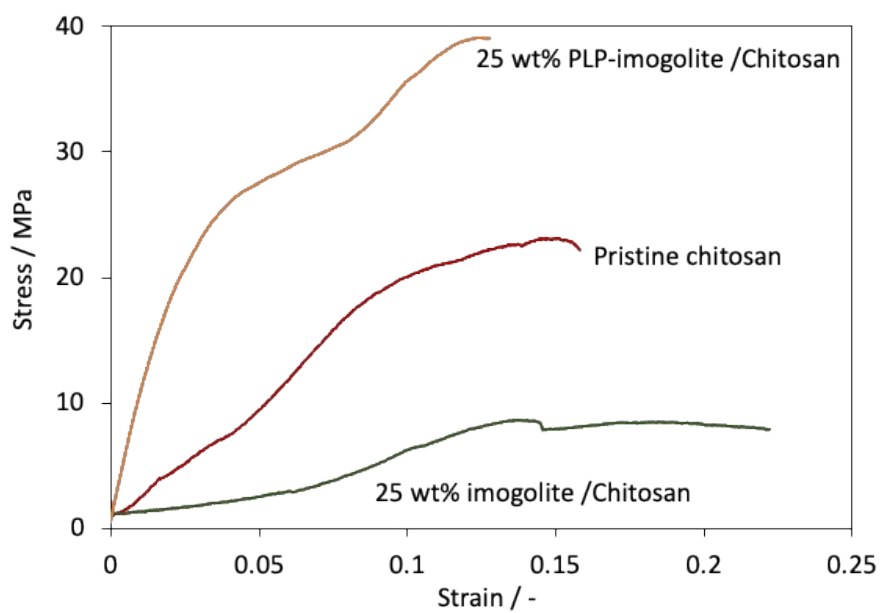


Fig. S7. Typical strain–stress curve of each hybrid film at room temperature.