Supporting Information

Modification of pea starch and dextrin polymers with isocyanate functional groups

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Degree of substitution (DS)

The DS was calculated according to the equation S.1, which adjusted from Wang *et al.*[1] and Heinze *et al.*[2] due to the two functional groups in IPDI:

$$DS = \frac{\frac{162.15 \times N\%}{14 \times 100 - 119.12 \times N\%}}{2} \qquad \text{S.1}$$

where N% is nitrogen content (%) determined by elemental analysis method, 162.15 is the molecular weight of anhydrous glucose unit, 119.12 is the molecular weight of IPDI, and 14 represents the nitrogen atomic mass.

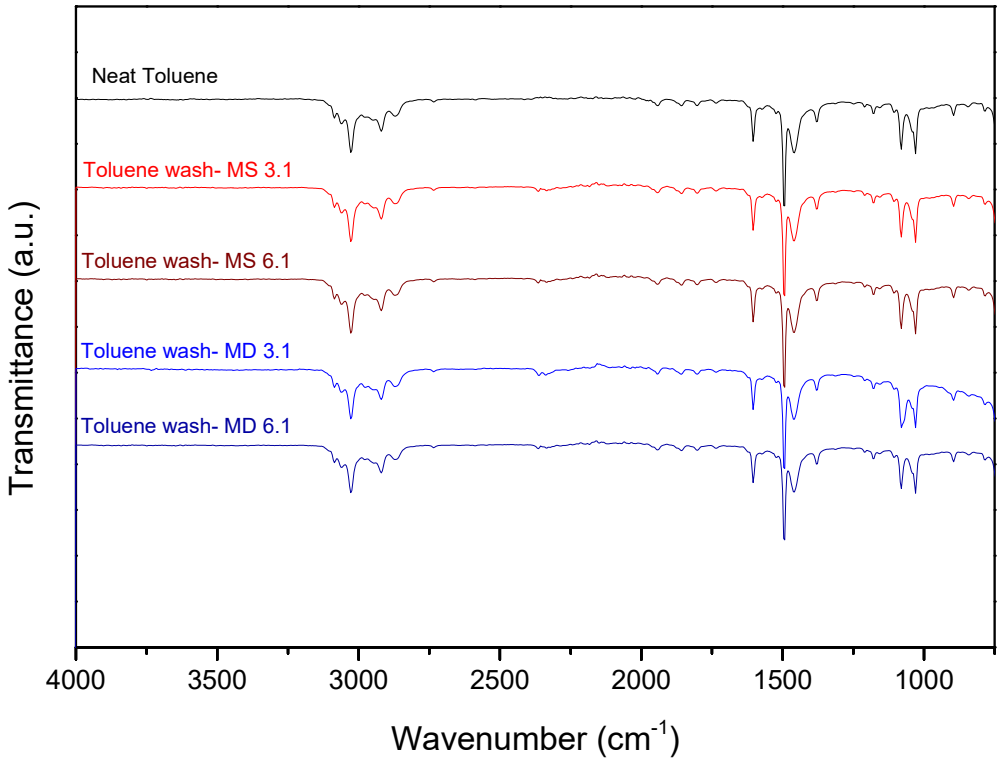

Figure S1: FTIR spectra of neat toluene and toluene from the third washing.

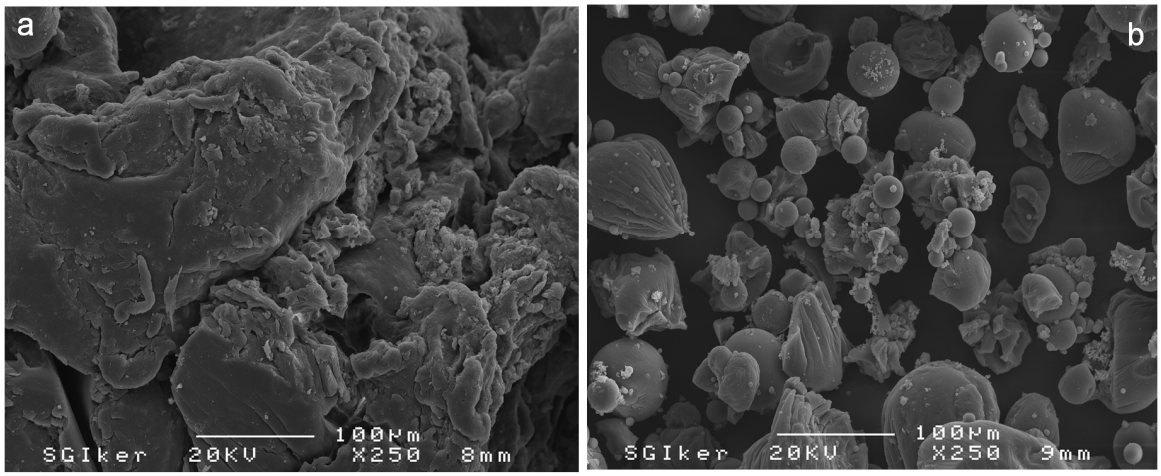

Figure S2: SEM micrographs of MS 3.1 (a) and MD 3.1 (b)

References

(1) Wang, P.; Wu, X.; Dong-hua, X.; Xu Kun, X.; Ying, T.; Xi-bing, D.; Wen-bo, L. Preparation and characterization of cationic corn starch with a high degree of substitution in dioxane–THF–water media, Carbohyd. Res., **2009**, *344*, 851-855.

(2) Heinze, T.; Haack, V.; Rensing, S. Starch derivatives of high degree of functionalization. Preparation of cationic 2-hydroxypropyltrimethylammonium chloride starches, Starch-Stärke., **2004**, *56*, 288-296.