# Supporting information

# Polyamide 6-Organic Montmorillonite Composite Sponge by Large-scale Solution Foaming as Reusable and Efficient Oil and Organic Pollutants Sorbent

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*Correspondence: Liang Wang, liangwang@tjpu.edu.cn; Yong Liu, liuyong@tjpu.edu.cn. Tel: +86-22-83955298. Binshui West Road 399, Xiqing Distinct, 300387,Tianjin, China.
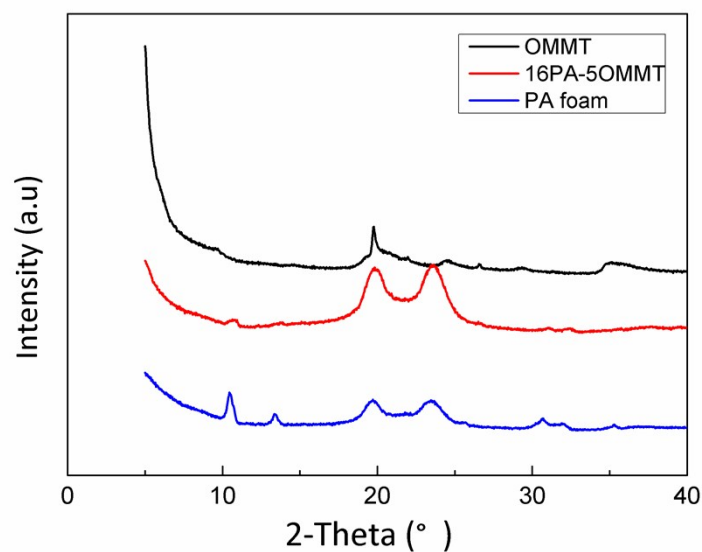
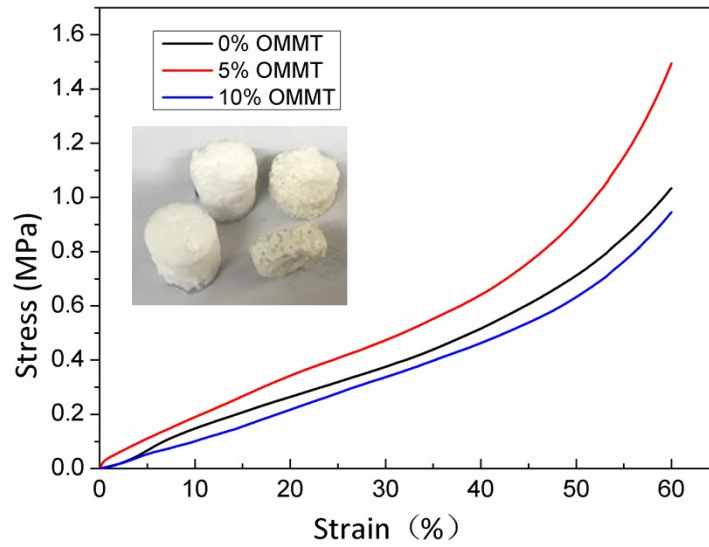Figure S1. XRD patterns of raw OMMT, PA and representative PA-OMMT foams.

Figure S2. Compressive curves of prepared representative PA-based foams.

Table S1. Compressive mechanical properties of PA-OMMT composite foams.

| Sample | $\sigma_{10\%}$ (MPa) | $\sigma_{60\%}$ (MPa) | E (MPa) |
|---|---|---|---|
| PA6 | 0.15 | 0.99 | 0.62 |
| PA-5%OMMT | 0.20 | 1.54 | 4.31 |
| PA-10%OMMT | 0.09 | 2.92 | 1.96 |

Table S2. Water adsorption properties of PA-based foams.

| Sample | Adsorption Capacity (g/g) | Adsorption Saturation Time (s) |
|---|---|---|
| PA | ~10 | 5～10s |
| PA-10%OMMT | 5.5 | 50s～60s |
| PA-10%OMMT-0.5%MTS | 2.4 | ＞300s |

Table S3. Viscosity of oil and organic solvent used and saturation adsorption time of sample 16PA-10OMMT to different oils.

| Oil type | Viscosity (m Pa) | Saturation adsorption time |
|---|---|---|
| Soybean oil | 12 | 12 |
| Gasoline oil | - | 8 |
| Mineral oil | 44 | 22 |
| Vacuum pump oil | 43 | 20 |
| N-hexane | - | 6 |
| Anhydrous ethanol | 1.2 | 8 |
| Dimethyl formamide | - | 6 |

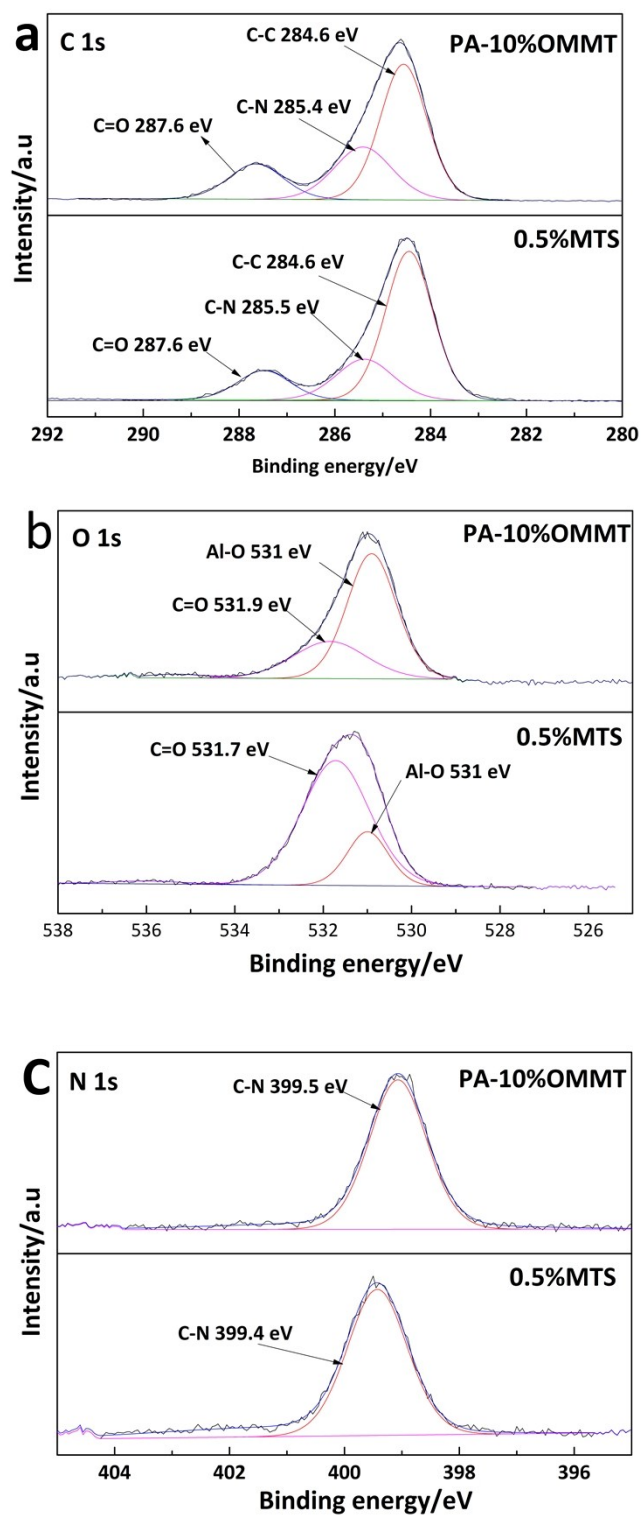"-" means the viscosity of oil is too low to be measured.

Figure S3. Figure S3. X-ray photoelectron spectroscopy (XPS) spectra of of sample 16PA-10OMMT and 0.5%MTS-20min: high-resolution scans of (a) C1s; (b) O1s; (c) N1s.