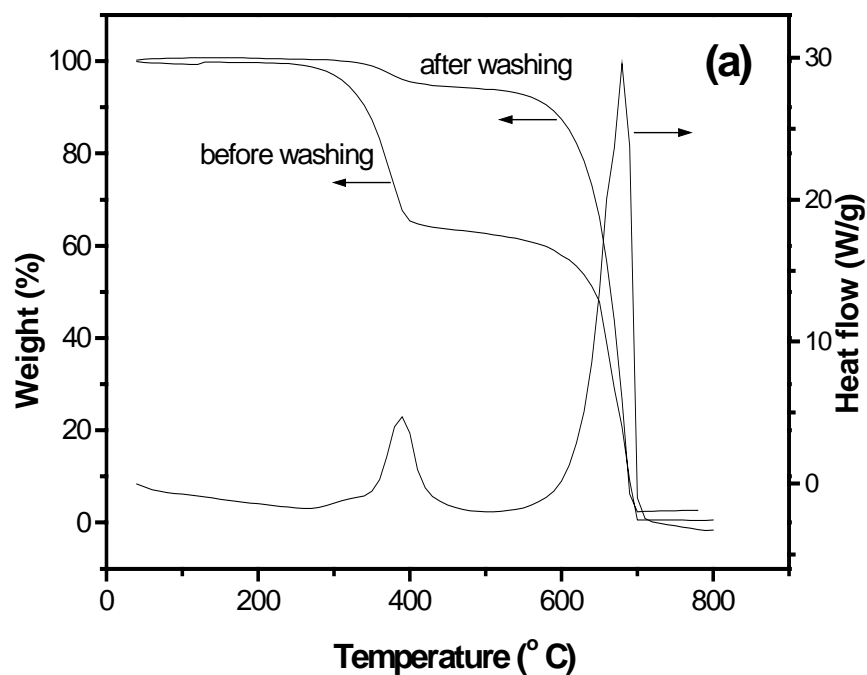


- **Supporting Information**

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1. TGA-DSC analysis of surfactants

Figures 1(a) to 1(c) display the TGA-DSC data of various surfactants analyzed in this study. Triton X-100 began to lose weight at about 300°C and decomposed at about 390°C as evidenced by an exothermal peak (Figure 1(a)). Another exothermal peak occurred at about 650 °C was caused by carbon burning. Brij-30 displayed similar thermal properties except a slightly lower decomposition temperature at about 350°C (Figure 1(b)). Figure 1(c) shows the TGA-DSC analysis of AOT where approximately 15 wt% of residue remained even after complete surfactant decomposition.



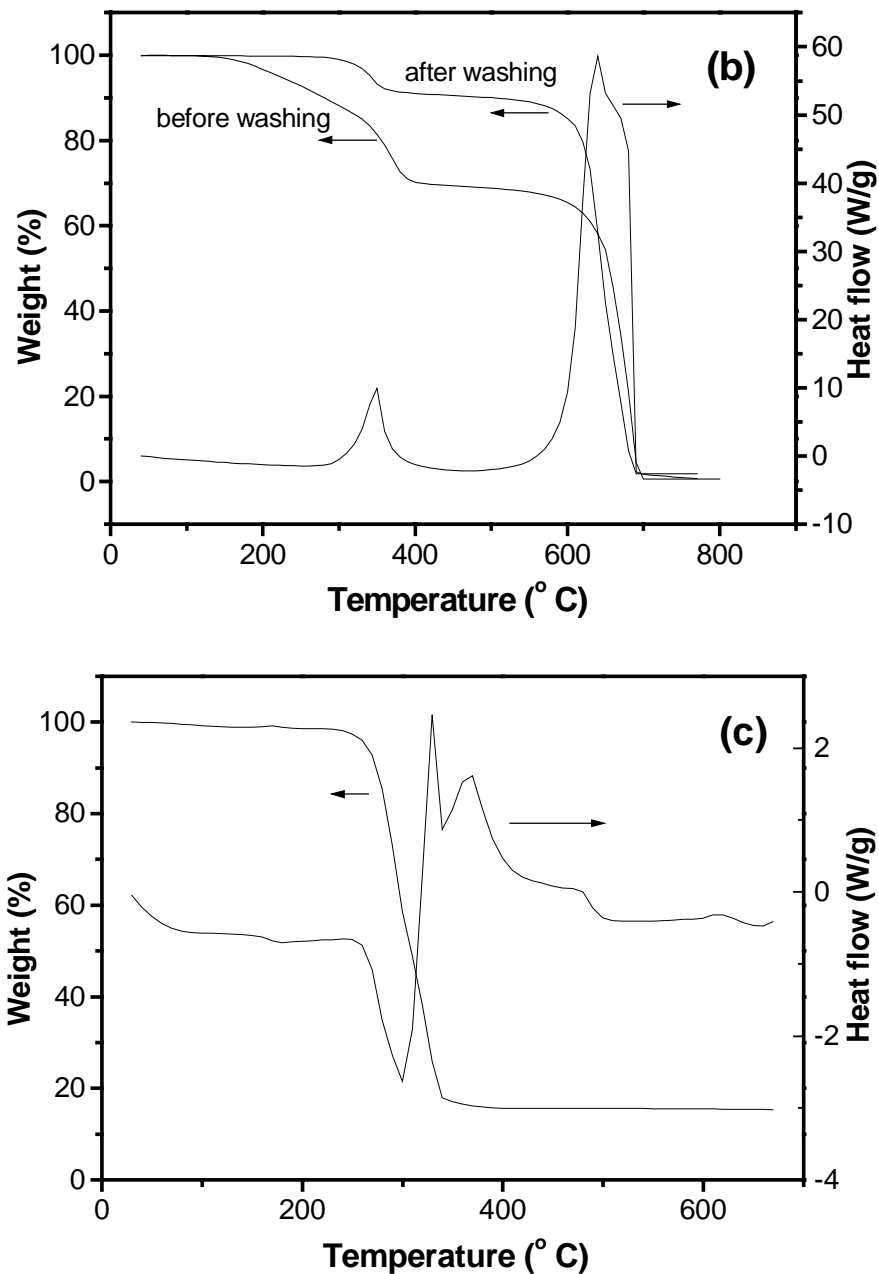


Figure 1. TGA-DSC curves of surfactants: (a) Triton X-100/C before and after washing; (b) Brij-30/C before and after washing; and (c) AOT. All the experiments were carried out in air with a heating rate of 20°C/min.

2. EDX Analysis of tungsten oxide and metallic tungsten

The EDX spectrums of tungsten oxide and metallic tungsten are shown in Figures 2 (a) and 2(b), respectively. No inorganic impurities were detected.

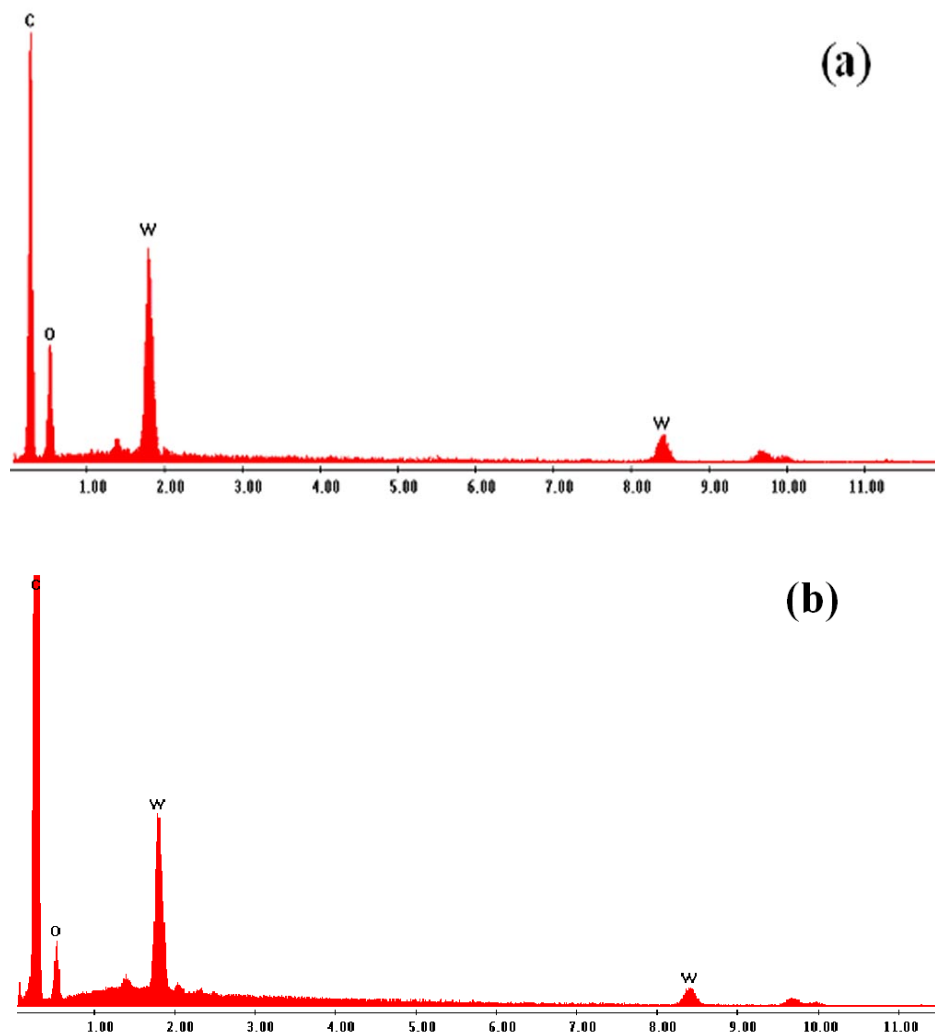


Figure 2. EDX spectrums of (a) tungsten oxide and (b) metallic tungsten. Samples were prepared on carbon tapes.

3. Low magnification TEM micrographs

The HAADF-STEM images of unsupported metallic tungsten and tungsten oxide nanoparticles at low magnification are shown in Figures 3(a) and 3(b), respectively. The bright spots due to Z-contrast are tungsten (Figure 3(a)) or tungsten oxide (Figure 3(b)).

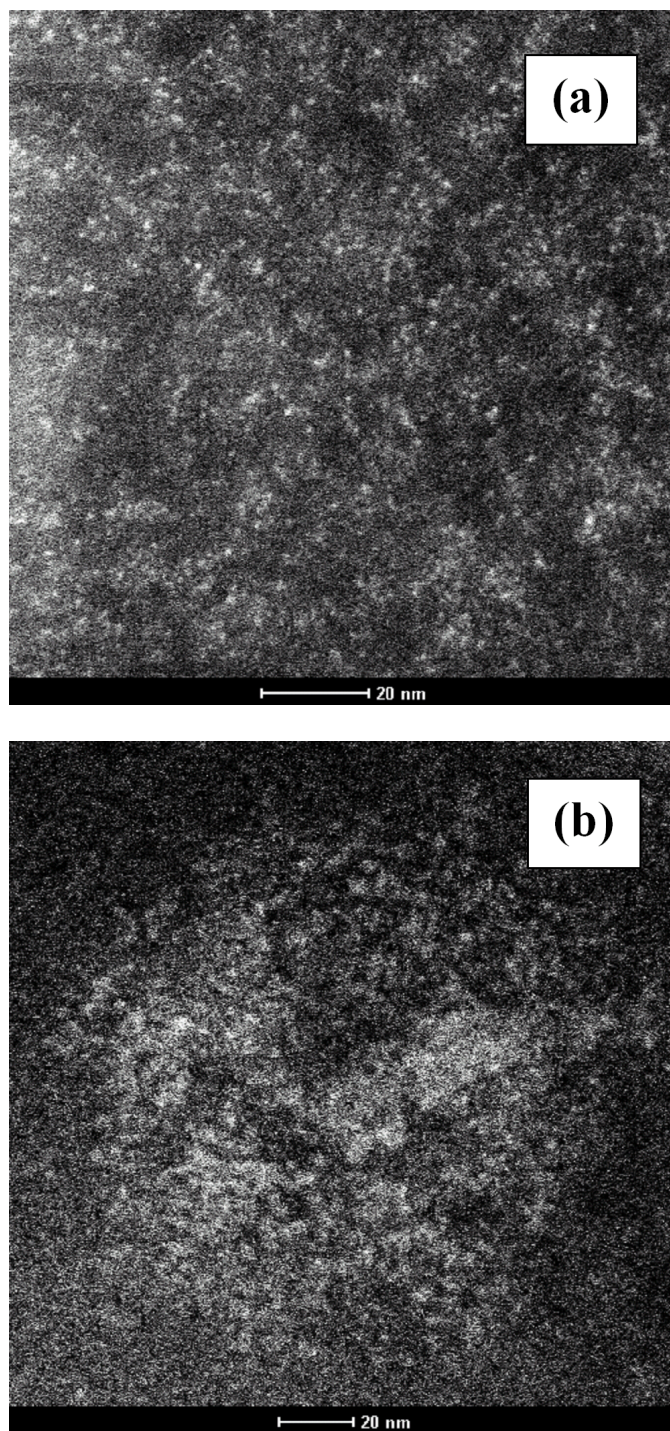


Figure 3 HAADF-STEM micrographs of (a) unsupported tungsten and (b) tungsten oxide.