

## Supporting Information

The effect of a micro-crystalline ZnO with columnar structure on the crystallization behavior and mechanical properties of poly(ethylene 2,6-naphthalate)

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## XRD analysis

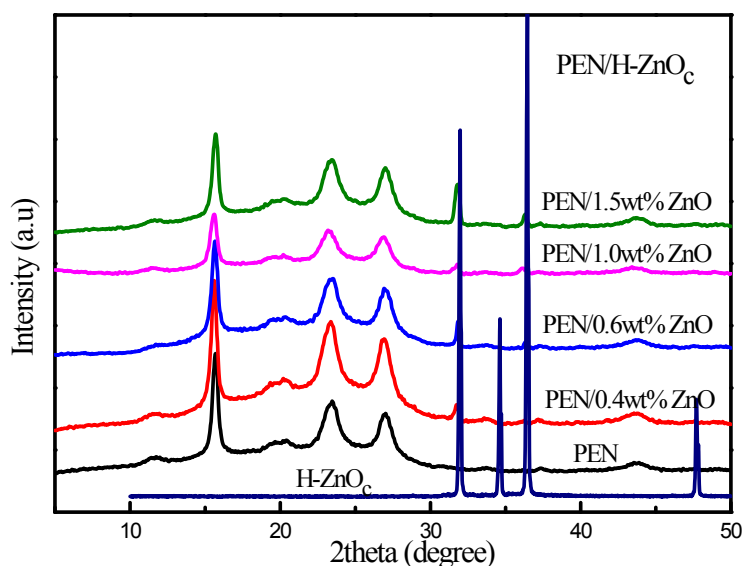


Figure 1. XRD patterns for H-ZnO<sub>c</sub>, PEN and PEN/H-ZnO<sub>c</sub> blends

Figure 1 shows the crystal phases of H-ZnO<sub>c</sub>, PEN and PEN/H-ZnO<sub>c</sub> composites.

The diffraction peaks at 16.4°, 22.7° and 25.8° are attributed to (010), (100) and (10)

crystal plane of PEN, respectively<sup>16</sup>. In Figure 1, the peak positions of the diffraction peaks of the composites has not shifted, illustrating that H-ZnO<sub>c</sub> does not change the crystal form of PEN. Two new peaks at  $2\theta=31.7^\circ$  and  $36.3^\circ$ , which match to the diffraction peak of H-ZnO<sub>c</sub>, it means that H-ZnO<sub>c</sub> will agglomerate in the PEN matrix. This experimental phenomenon will be further confirmed by the SEM cross-sectional photos of the PEN/H-ZnO<sub>c</sub> composite material.