polymers

MDPI

Article

The Influence of the Blend Ratio in PA6/PA66/MWCNT Blend Composites on the Electrical and Thermal Properties

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Supplementary Materials

Transmission electron microscopy (TEM) on PA6/PA66/MWCNT blends

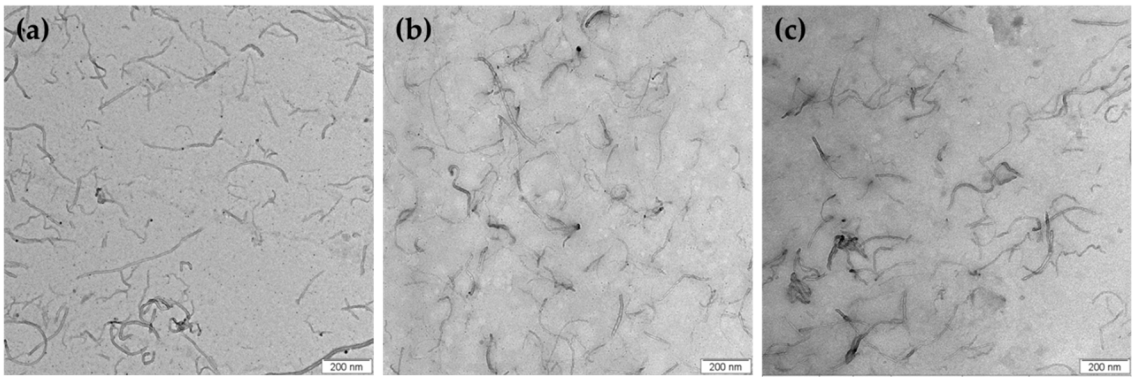

Figure S1. TEM micrograph of (**a**) PA6 +1 wt % MWCNT, (**b**) PA66 + 1 wt % MWCNT, and **(c)** PA66/PA6 40/60 +1 wt % MWCNT (thin section, Zeiss Libra 120).

Differential scanning calorimetry (DSC)

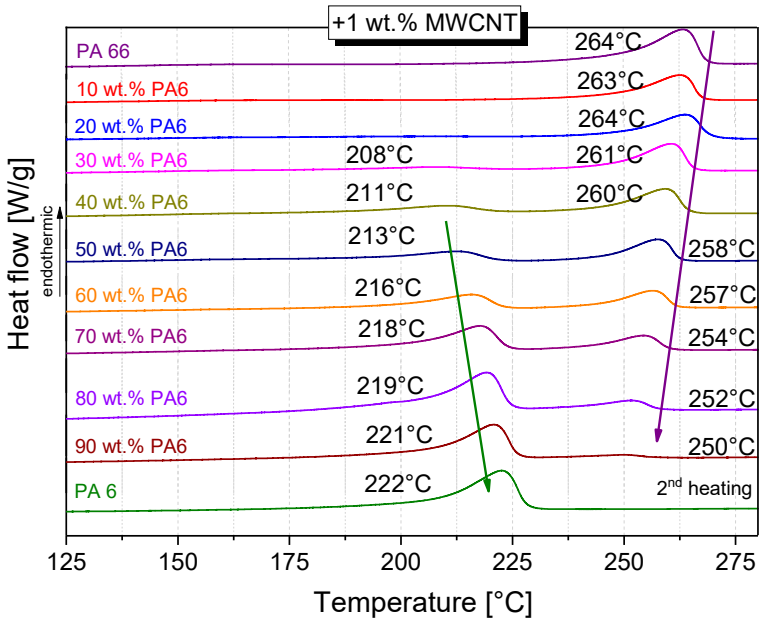

Figure S2. Melting behavior of PA66/PA6/1 wt % MWCNT composite including melting temperature T_m (2^{nd} heating).

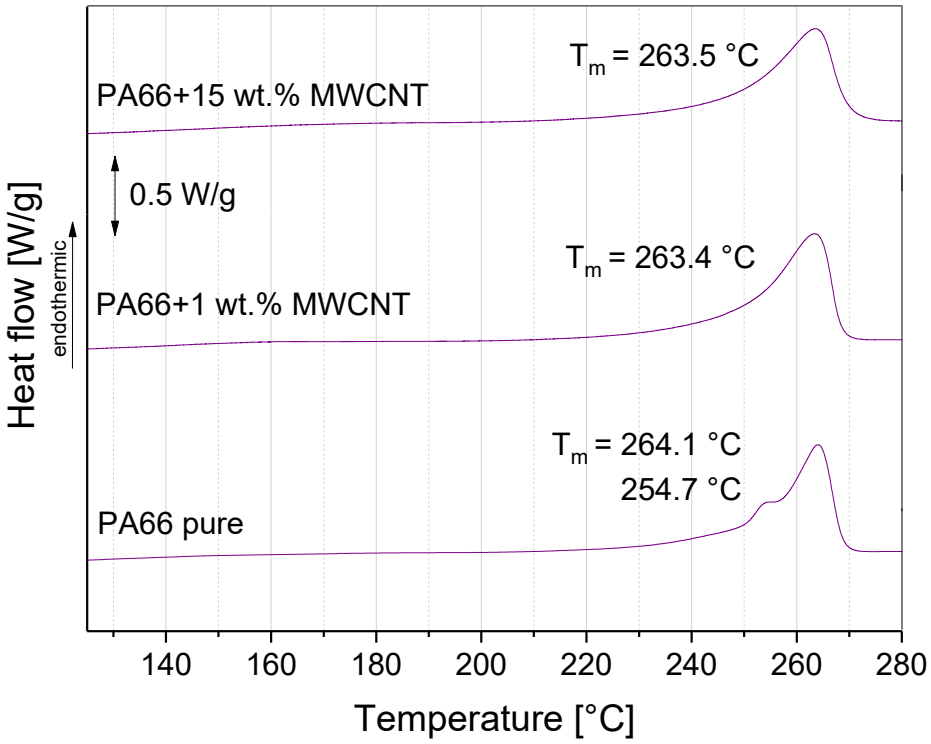

Figure S3. Melting behavior of PA66, PA66/1 wt % MWCNT (masterbatch dilution), and PA66/15 wt % MWCNT (masterbatch Plasticyl™ PA1501) (2nd heating).

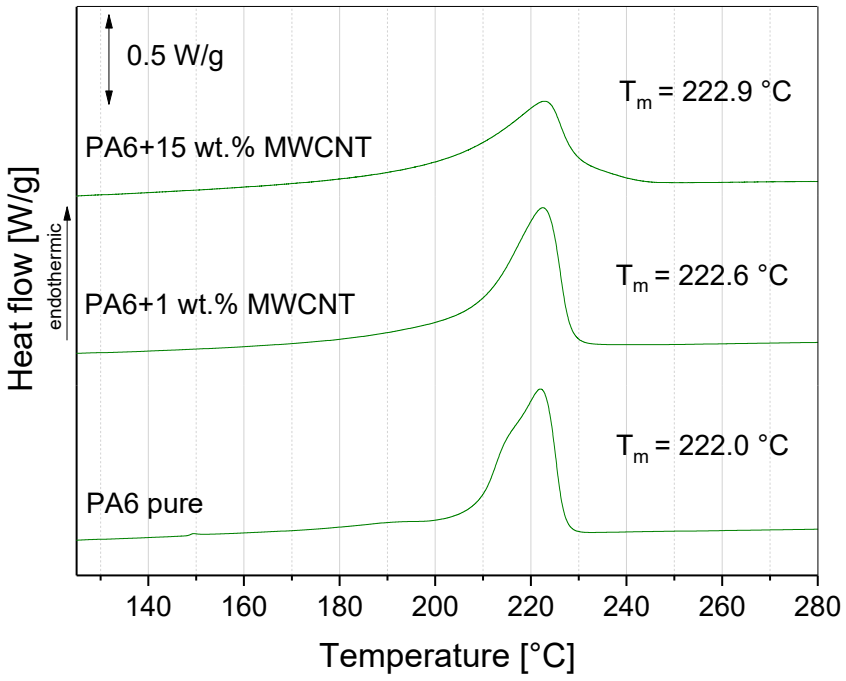

Figure S4. Melting behavior of PA6, PA6/1 wt % MWCNT (masterbatch dilution), and PA6/15 wt % MWCNT (masterbatch Plasticyl™ PA1503) (2nd heating).

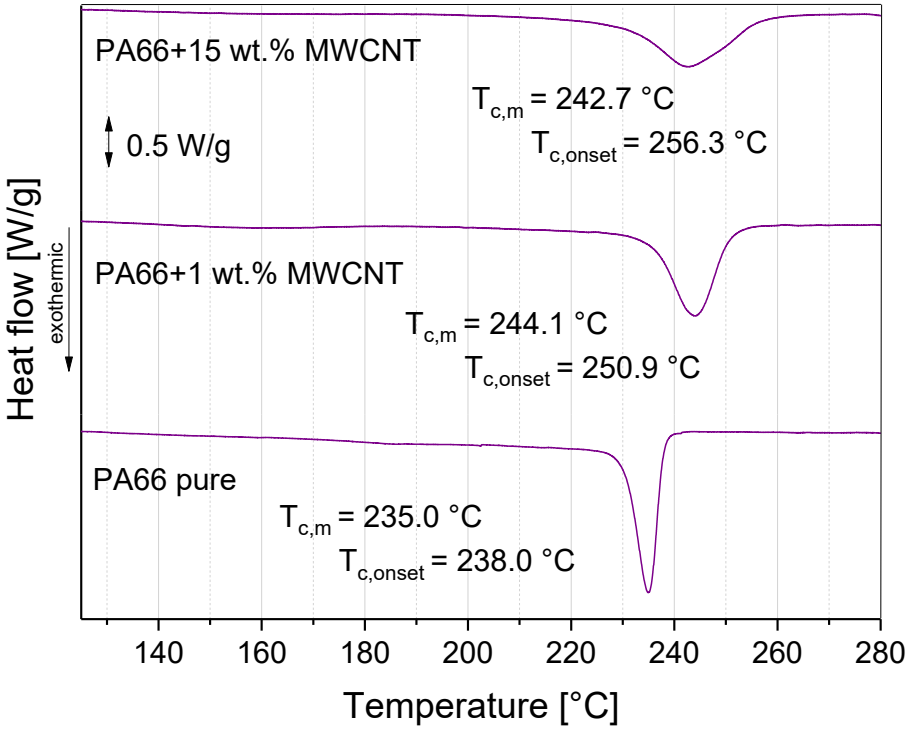

Figure S5. Crystallization behavior of PA66, PA66/1 wt % MWCNT (masterbatch dilution), and PA66/15 wt % MWCNT (masterbatch Plasticyl™ PA1501).

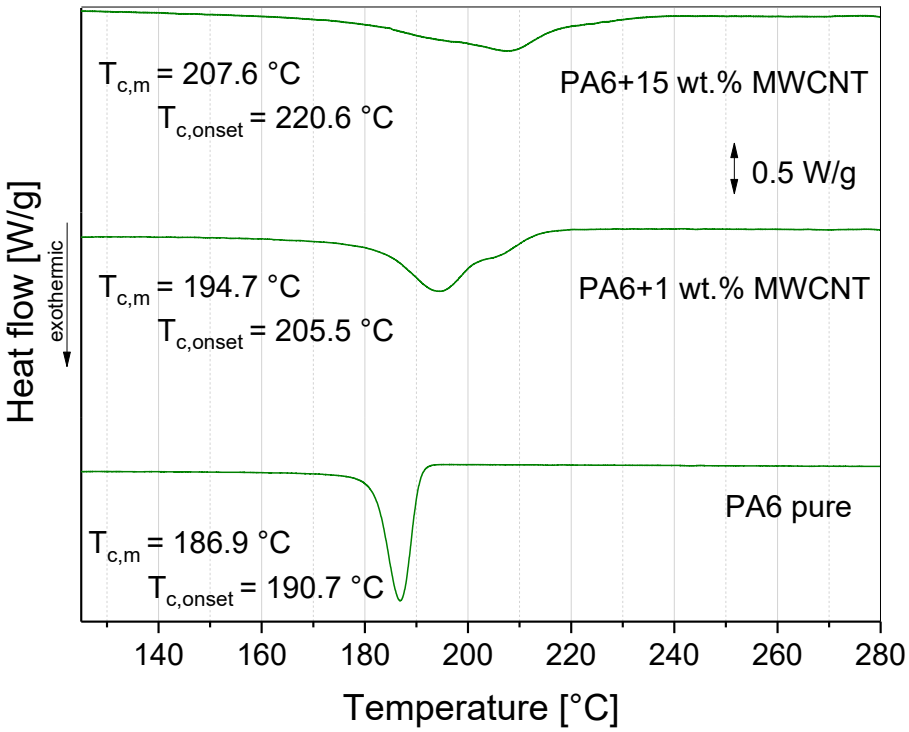

Figure S6. Crystallization behavior of PA6, PA6/1 wt % MWCNT (masterbatch dilution), and PA6/15 wt % MWCNT (masterbatch Plasticyl™ PA1503).

Table S1. Melting temperatures ΔH_m of PA6 and PA66 in PA66/PA6 blends filled with 0 or 1 wt % MWCNT.

Blend composition	ΔH_m [°C] PA6		ΔH_m [°C] PA66	
	@ 0 wt.% CNT	@ 1 wt.% CNT	@ 0 wt.% CNT	@ 1 wt.% CNT
PA66	-	-	85.0	83.2
PA66/PA6 90/10	-	-	78.4	78.5
PA66/PA6 80/20	-	-	75.7	82.4
PA66/PA6 70/30	13.2	19.8	53.1	55.2
PA66/PA6 60/40	26.3	35.4	44.9	53.8
PA66/PA6 50/50	43.6	32.1	37.1	36.3
PA66/PA6 40/60	46.5	42.1	30.9	31.7
PA66/PA6 30/70	49.8	56.2	14.2	24.1
PA66/PA6 20/80	58.7	76.7	18.6	14.4
PA66/PA6 10/90	67.4	72.1	7.0	6.2
PA6	67.7	80.6	-	-

Rheological measurements

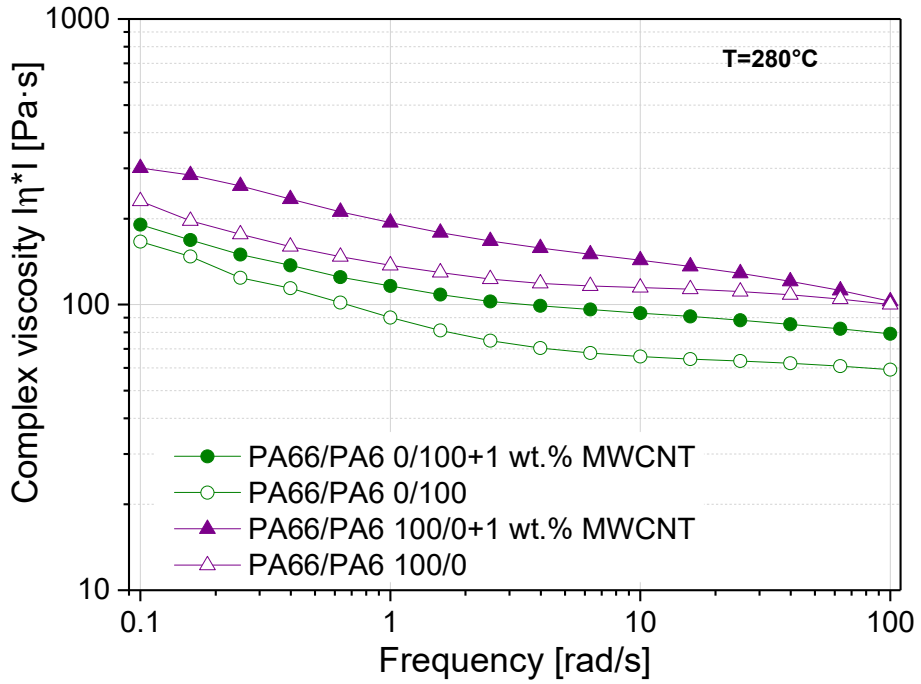

Figure S7. Complex viscosity of PA6 and PA66 and their composites filled with 1 wt % MWCNT.

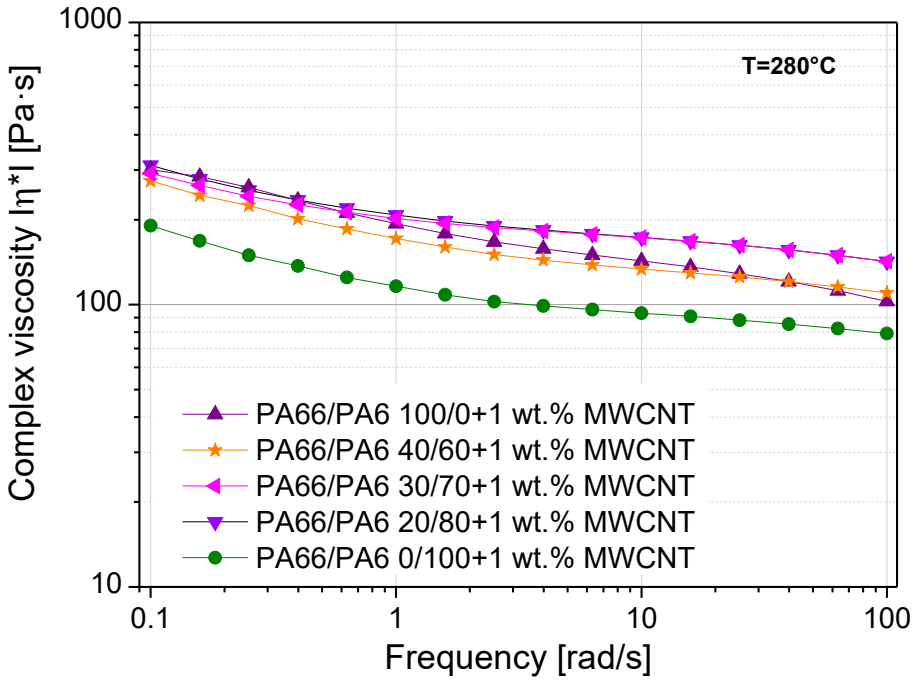

Figure S8. Complex viscosity of PA66/PA6/1 wt % MWCNT blends.