Supporting information

Table S1 Curve Fitting Results of the C=O Stretching Region

Samples	SMPU30		SMPU30-INCh-0.7		SMPU30-INCh-1.0		SMPU30-INCh-1.5	
	v (cm^{-1})	Area (%)	v (cm^{-1})	Area	v (cm^{-1})	Area	v (cm^{-1})	Area
Free C=O in PCL, PU segments and INCh	1739	21.75	1737	17.90	1742	19.60	1733	66.20
Hydrogen bonded C=O in PCL and PU segments	1727	24.46	1724	8.70	1725	21.45	1724	23.12
COOH bonded to PCL and PU segments	1705	3.13	1705	1.10	1705	1.22	1709	1.58
COOH bonded to INCh	-	-	1697	2.10	1696	2.50	1703	5.25
COOH dimers	1693	9.66	1685	3.11	1685	3.99	1692	11.70

Table S2 DSC results of INCh, SMPU30 and their composites discussed in this paper

Samples	First Heating		First Cooling		
	T_{mL} [^{o}C] (ΔH [Jg^{-1}])	T_{mH} [^{o}C] (ΔH [Jg^{-1}])	T_{cp}[^{o}C] (ΔH [Jg^{-1}])	T_{cH} [^{o}C] (ΔH [Jg^{-1}])	T_{cL}[^{o}C] (ΔH [Jg^{-1}])
INCh	-	173 (56.9)	167 (2.71)	133 (53.8)	-
SMPU30	49.4 (48.1)	-	-	-	23.7 (27.6)
SMPU30-INCh0.7	44.1 (41.7)	164 (5.05)	-	135 (8.71)	28.7 (41.6)
SMPU30-INCh1.0	40.1 (24.3)	166 (3.90)	-	129 (5.44)	22.4 (12.2)
SMPU30-INCh1.5	40.2 (29.4)	168 (11.6)	-	131 (14.3)	23.7 (17.9)

T_{mL}: the melting point of PCL segments

T_{mH}: the melting point of INCh

T_{cp}: the clearing point temperature of INCh

T_{cL}: the crystallization point of PCL segments

T_{cH}: the crystallization point of INCh

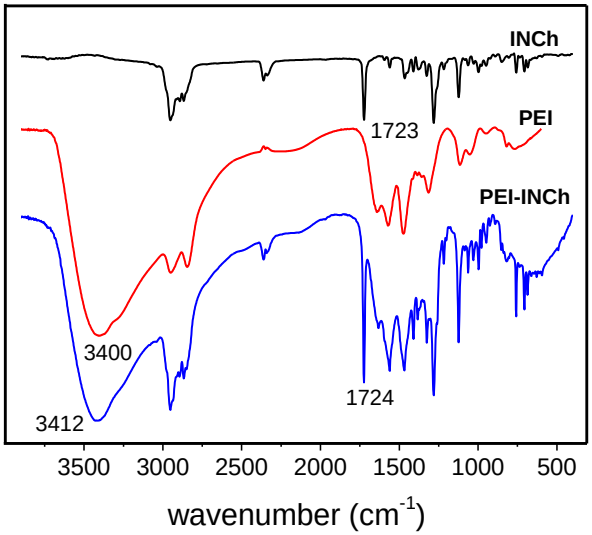

Figure S1 FTIR of PEI, INCh and their composite.

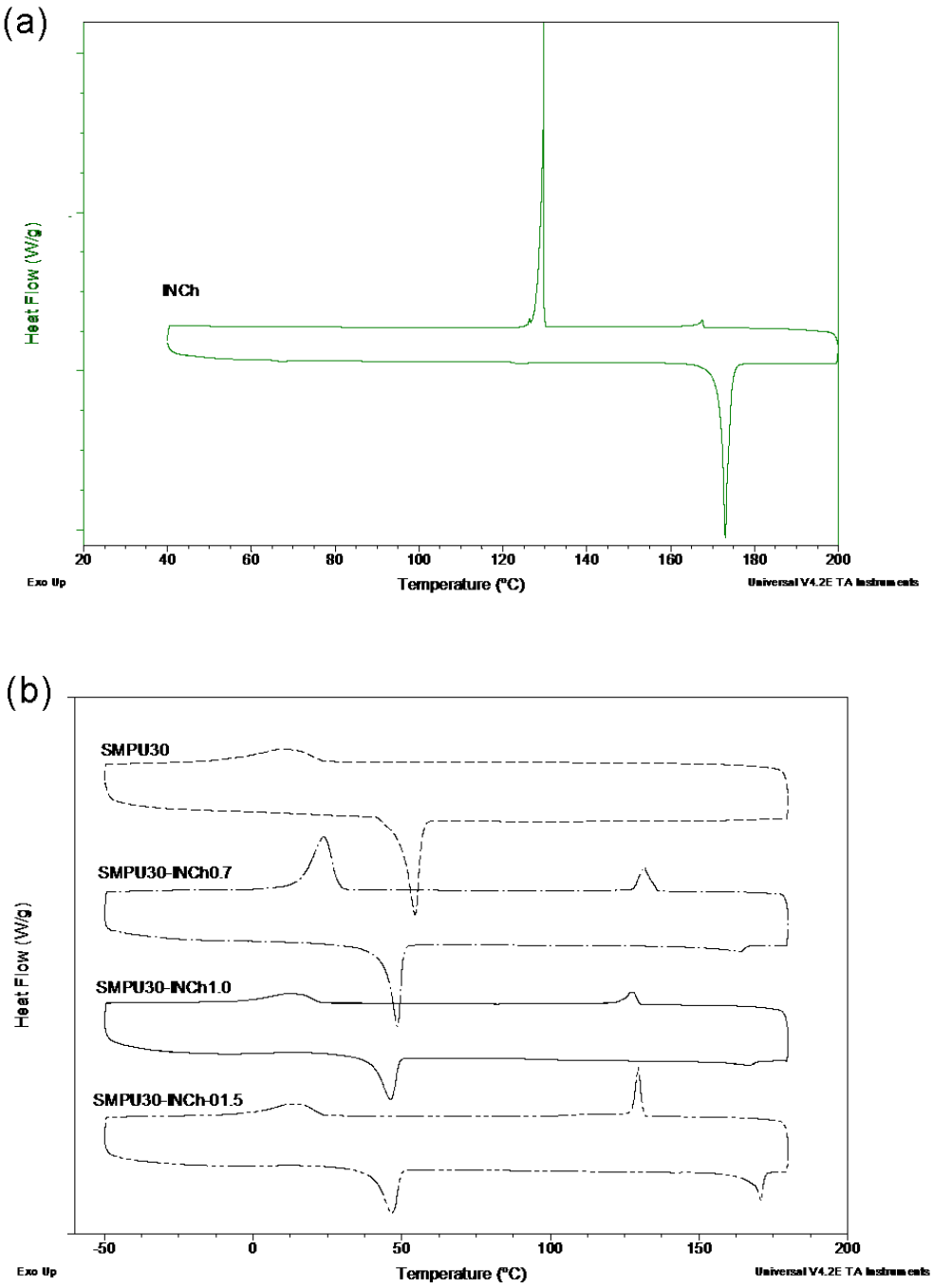

Figure S2 DSC curves of **(a)** INCh, **(b)** SMPU30 and SMPU30-INCh-*n*.

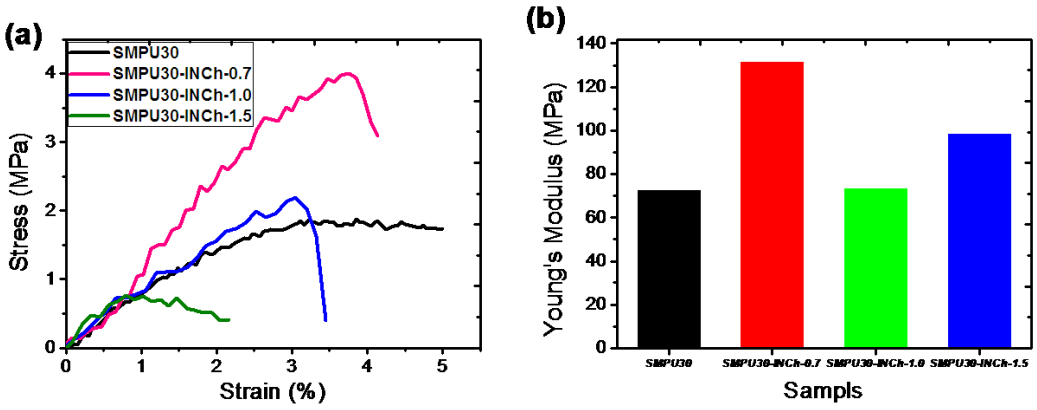

Figure S3 (a) Stress-strain curves and **(b)** Young's modulus of SMPU30 and SMPU30-INCh-*n*.

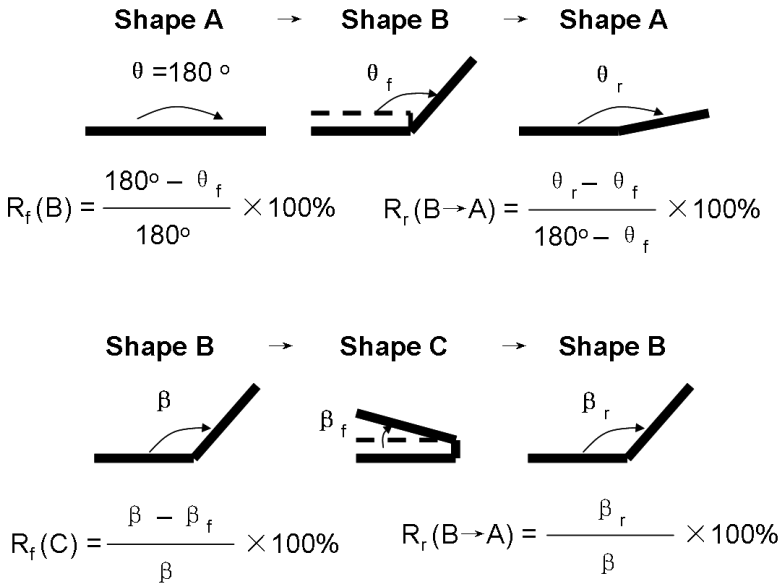

Figure S4 Schematic and formulas of calculating the shape fixing (R_f) and recovery (R_r) ratios. **A** is original shape, **B** is the first temporary shape, and **C** is the second temporary shape. Firstly the sample with shape **A** was heating up to 70 ℃, then was folded at 180° and quickly cooling down 55 ℃, sample recovered to an angle θ_f to fix the shape **B**. Next fold the sample at 180° again and quickly cool down to 20 ℃, sample recovered to an angle β_f to fix the shape **C**. Heating the sample up to 55 ℃ the shape **B** recovered with β_r, go on heating up to 70 ℃ the shape **A** recovered with θ_r.