Supporting Information

Highly tough and transparent layered composites of nanocellulose and synthetic silicate

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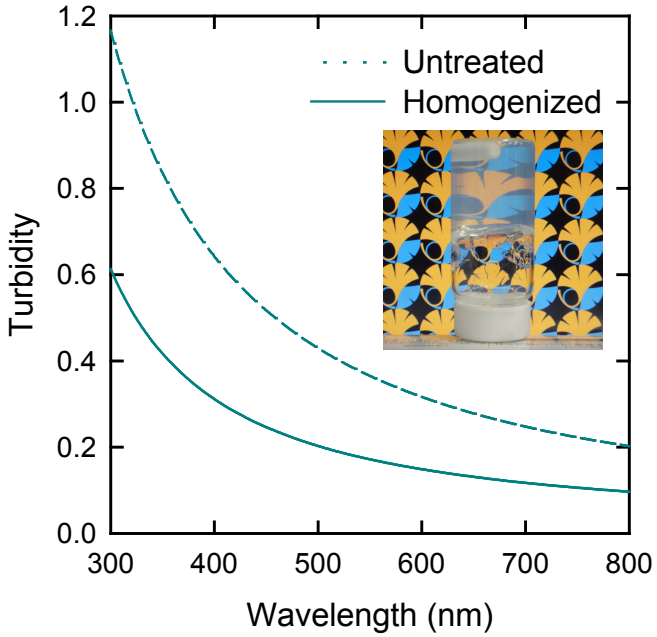

Fig. S1 Turbidities of 2% w/v SPN dispersions before and after homogenizing treatments using a mechanical homogenizer of double-cylinder type and an ultrasonic homogenizer. The inset is a photograph of the homogenized SPN dispersion standing upside down, showing transparency and high viscosity of the dispersion.

Table S1 Mechanical and oxygen barrier properties of the TOCN/SPN composite films.

Sample	SPN content (% w/w)	Young's modulus (GPa)	Yield stress (MPa)	Tensile strength (MPa)	Strain-to-failure (%)	Work of fracture (MJ m^{-3})	Oxygen permeability (mL µm m^{-2} day^{-1} kPa^{-1})	
							0% RH	50% RH
TOCN	0	11.6 ± 0.6	143 ± 27	210 ± 40	3.2 ± 1.4	4.2 ± 2.7	0.030	1.029
TS01	1	11.8 ± 0.7	173 ± 15	242 ± 44	3.9 ± 1.5	6.3 ± 3.6	0.028	1.945
TS05	5	13.3 ± 2.6	189 ± 19	251 ± 20	4.3 ± 1.1	6.6 ± 1.8	0.018	1.585
TS10	10	14.5 ± 1.2	257 ± 18	425 ± 39	10.2 ± 1.5	29.8 ± 5.7	0.011	1.353
TS25	25	21.7 ± 1.5	270 ± 28	375 ± 56	6.5 ± 2.4	18.1 ± 7.4	0.012	1.219
TS50	50	21.8 ± 4.1	278 ± 9	339 ± 20	4.3 ± 0.7	10.7 ± 2.3	0.005	1.020