coatings

Supplementary Materials: Photocured Composite Films with Microfibrillated Cellulose: A Study of Water Vapor Permeability

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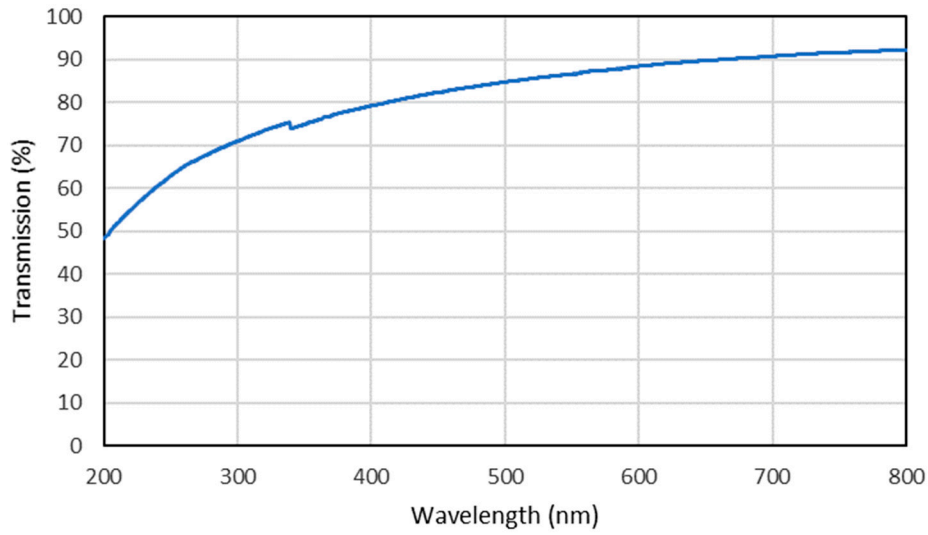

Figure S1. UV-visible spectrum of MFC (suspension in water at 0.005 wt.%).

The UV-visible spectrum of MFC was collected with a JENWAY 6850 UV/Vis (Cole-Parmer, Stone, Staffordshire, UK) UV-visible spectrophotometer. A quartz cuvette was filled with an MFC suspension at a 0.005 wt.% concentration in demineralized water and placed in the sample holder; a quartz cuvette filled with demineralized water was used as reference.

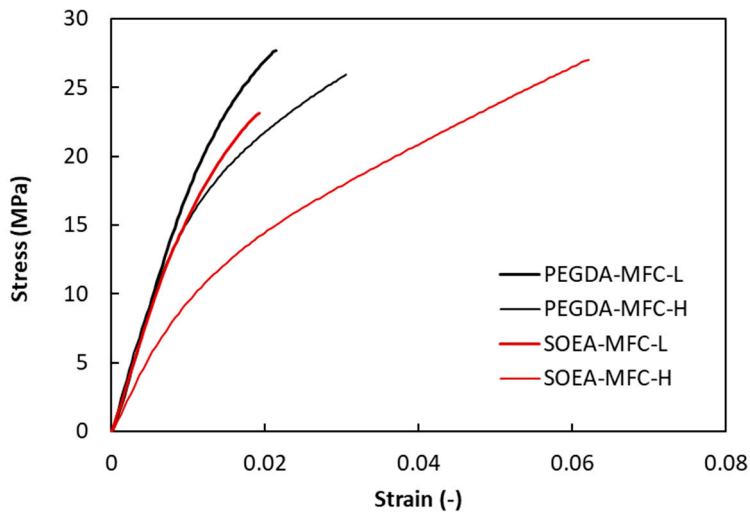

Figure S2. Stress-strain curves for PEGDA-based and SOEA-based composites.

Table S1. Water vapor permeability (WVP) of PEGDA-based and SOEA-based composites, compared to the literature values for cellulose films, composites and polymers.

	T [°C]	**RH%**	**WVP [(g · mm)/(m² · 24h · mmHg)]**	**Ref.**
PEGDA-MFC-L	20	50	0.262	*
PEGDA-MFC-L	38	50	0.310	
PEGDA-MFC-L	38	90	0.679	
PEGDA-MFC-H	38	50	2.381	
SOEA-MFC-L	20	50	0.269	*
SOEA-MFC-L	38	50	0.293	
SOEA-MFC-L	38	90	0.485	
SOEA-MFC-H	38	50	4.62	
Sodium carboxylated nanofibrillated cellulose films	23	50	0.38–0.43	[25]
Sodium carboxylated nanofibrillated cellulose films	25	90	3.04	[26]
Cellulose microfibrils, softwood kraft pulp	23	50	0.91	[27]
Birch wood xylan : carboxymethylated nanofibrillated cellulose films (60:40)	23	50	0.21	[28]
Birch wood xylan : carboxymethylated nanofibrillated cellulose films (50:50)	23	50	0.32	[28]
Thermoplastic starch: cellulose nanofibers (90:10)	25	98	0.26	[29]
Polyhydroxyalkanoates (PHAs)	38	90	0.04–0.17	[30]
Poly(lactic acid) (PLA)	38	90	0.32	[31]

(*) Water vapor permeability assessed with a MultiPerm permeability analyzer (ExtraSolution produced by Perm Tech, PermTech S.r.l., Pieve Fosciana (LU), Italy) at T = 20 °C and RH = 50%; the composite specimens were inserted in an aluminum surface reducer with an exposed area of 2.01 $cm^{2.}$