Electronic Supporting Information

Factors affecting the non-solvent induced phase separation of cellulose from ionic liquid-based solutions

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Table S1. Properties (refractive index and viscosity) of IL-DMSO mixtures (measured).

Solvent	**n**	**$\eta_{25°C}$ [cP]**	**$\eta_{40°C}$ [cP]**
[Bmim][OAc]	1.495	298.3	112.2
[Bmim][OAc]:DMSO = 4:1	1.492	78.4	37.1
[Bmim][OAc]:DMSO = 3:1	1.490	42.2	22.8
[Emim][OAc]	1.501	130.3	60.4
[Emim][OAc]:DMSO = 4:1	1.499	45.9	24.0
[Emim][OAc]:DMSO = 3:1	1.497	34.9	19.3

Table S2. The compositions of 8 wt % Cellulose solutions in different solvent systems

Solvent system	Mole fraction	
	x_{H20}	x_{OH} Cellulose
[Emim][OAc]	0.09	0.16
[Bmim][OAc]	0.06	0.20
[Emim][OAc]:DMSO = 4:1	0.06	0.12
[Bmim][OAc]:DMSO = 4:1	0.04	0.16
[Emim][OAc]:DMSO = 3:1	0.05	0.12
[Bmim][OAc]:DMSO = 3:1	0.03	0.16

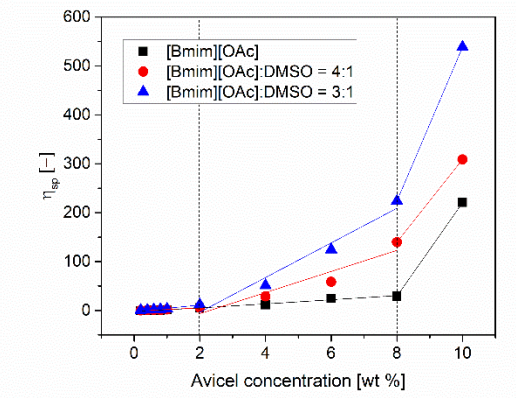

Figure S1. Specific viscosity vs. Avicel cellulose concentration at different IL dilutions with DMSO @ 25 °C.

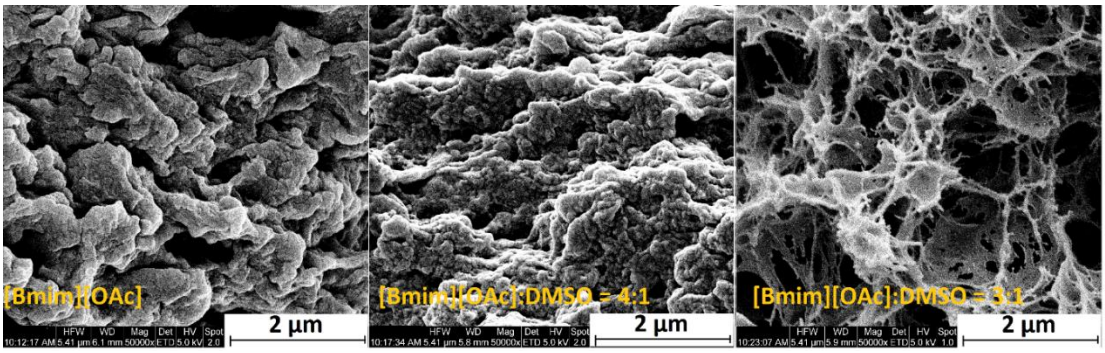

Figure S2. Influence of the co-solvent ratio on the porous film structure (cross section of 6 wt% α-Cellulose-based films).

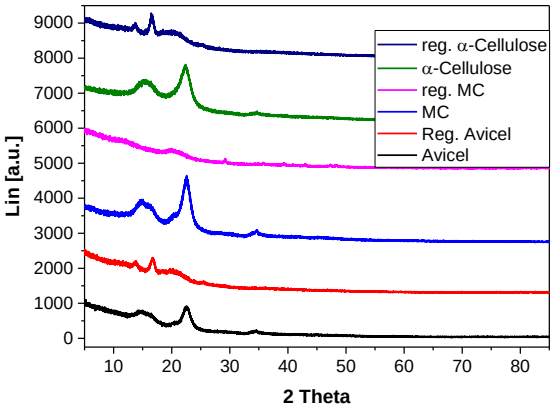

Figure S3. XRD diffraction patterns for the three types of cellulose precursors and for the corresponding porous cellulose films regenerated from 8 wt% polymer solutions in [Bmim][OAc]:DMSO = 3:1*

* The small peaks at 2θ = 13.7° and 2θ = 16.6° for some of the regenerated celluloses are artefacts due to the adhesive tape used to glue the sample in the holder.

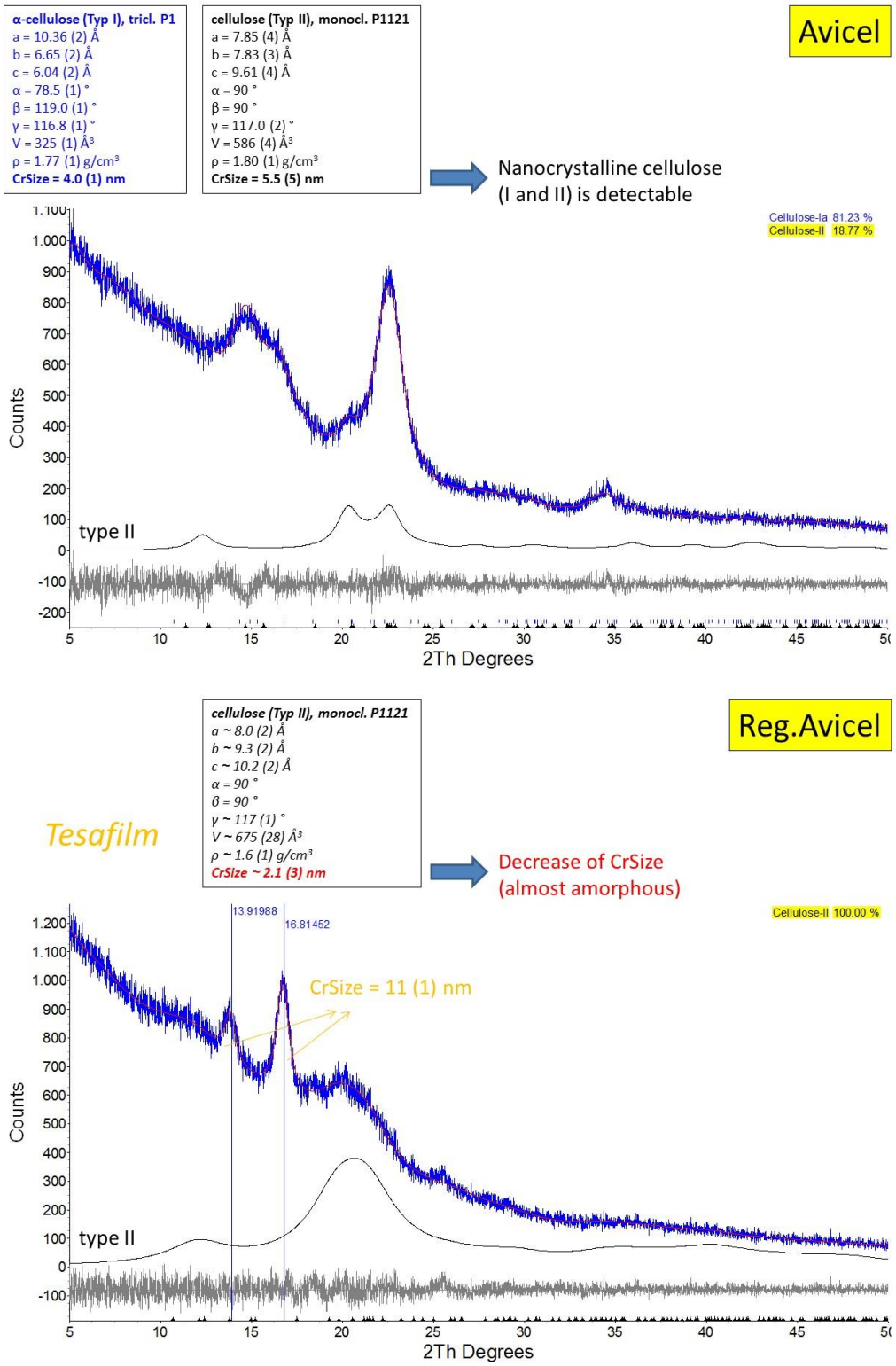

Figure S4. Crystallographic details for avicel and regenerated avicel membrane

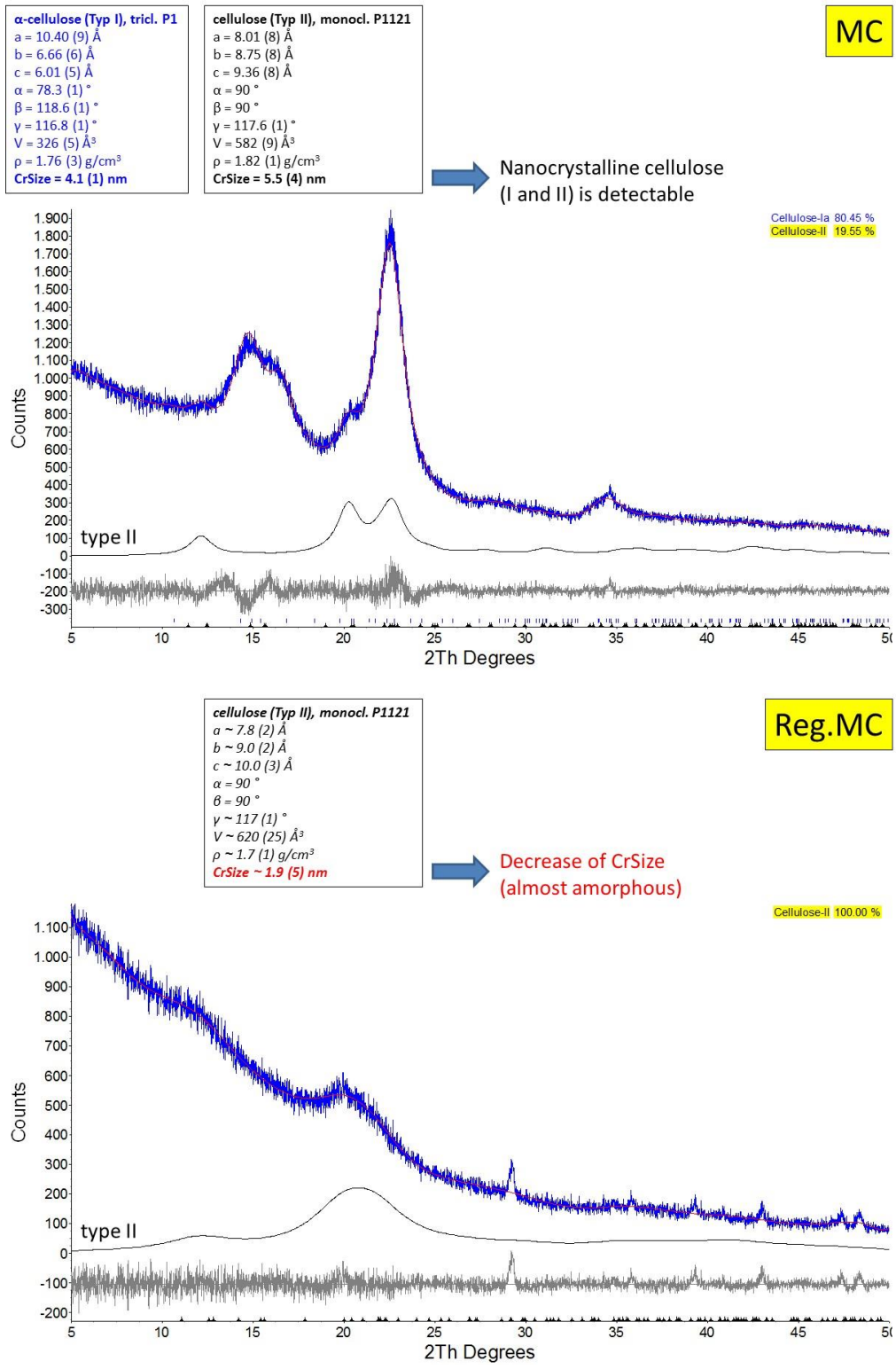

Figure S5. Crystallographic details for MC and regenerated MC membrane

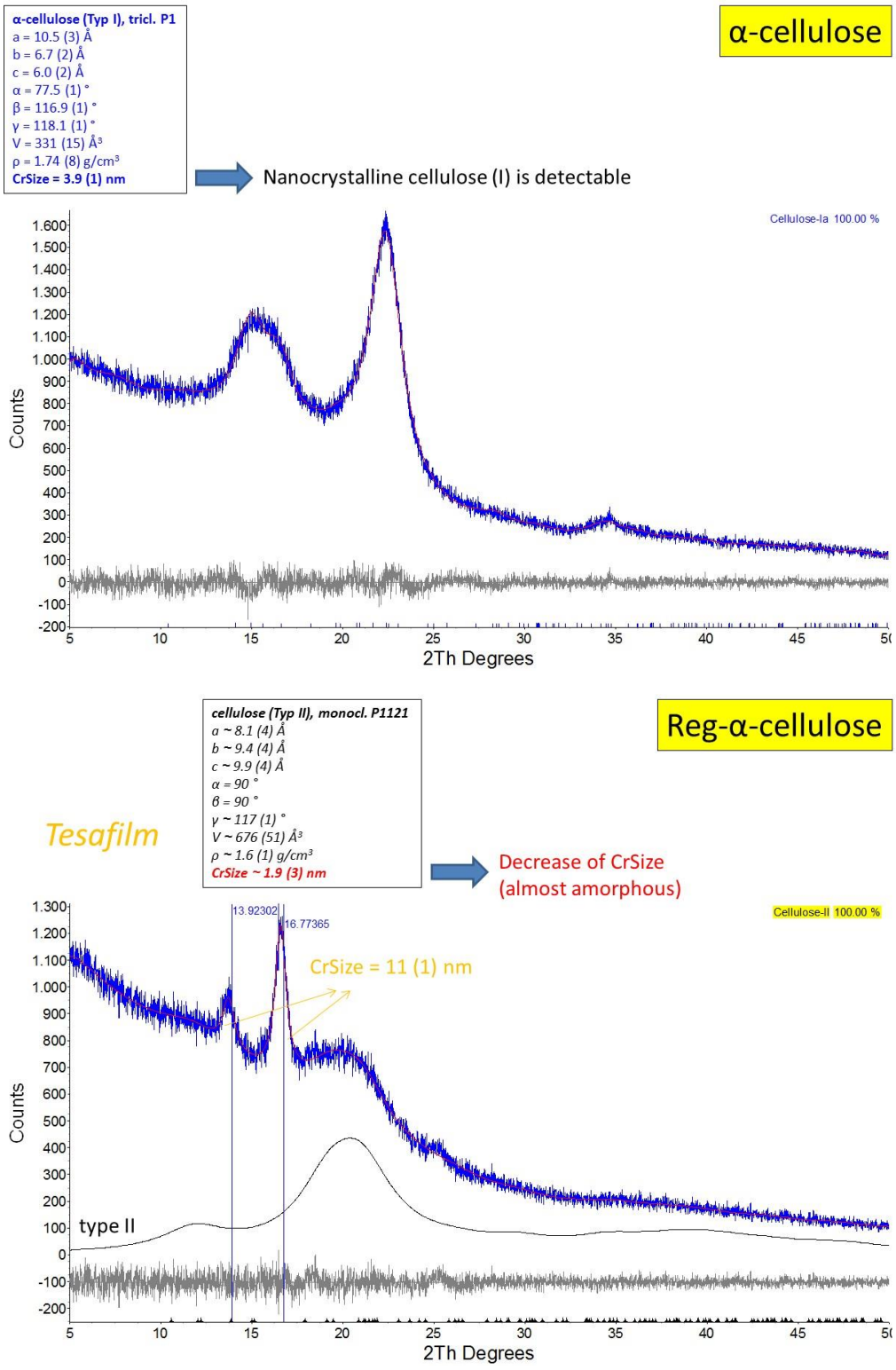

Figure S6 Crystallographic details for α-cellulose and regenerated α-cellulose membrane