**SUPPLEMENTARY MATERIAL**

**Electrospun PVA membranes reinforced with cellulose nanocrystals and thermally reduced graphene oxide: thermal, mechanical and UV-protection properties**

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| **PVA (4 wt.%)** | |
| **a)**  **3000x**  **1 µm** | **b)**  **1 µm**  **10000x** |
| **PVA (6 wt.%)** | |
| **c)**  **3000x**  **1 µm** | **d)**  **3000x**  **1 µm** |
| **PVA (8 wt.%)** | |
| **e)**  **10 µm**  **1000x** | **f)**  **1 µm**  **3000x** |
| **PVA (10 wt.%)** | |
| **g)**  **100 µm**  **100x** | **h)**  **1 µm**  **3000x** |

**Figure S1.** Morphological changes of PVA electrospun fibers in dependence of the concentration analyzing different zones and magnifications a-b) 4 wt.%, c-d) 6 wt.%, e-f) 8 wt.% and g-h) 10 wt.%.

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| **PVA (8 wt.%):CNC (95:5)** |
| **10 µm**  **1000x**  **a)** |
| **PVA (8 wt.%):CNC (90:10)** |
| **10 µm**  **1000x**  **b)** |
| **PVA (8 wt.%):CNC (85:15)** |
| **10 µm**  **1000x**  **c)** |

**Figure S2.** SEM images of the PVA (8 wt.%):CNC electrospun fibers using different ratio at different magnifications a) PVA:CNC (95:5), b) PVA:CNC (90:10) and c) PVA:CNC (85:15).

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| **PVA (8 wt.%):CNC:TrGO (94.5:5.0.0:0.5)** |
| **C:\Users\TEMP.DESKTOP-N98F5LE.001\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Itzel PVA-GO-5-24h-12_e.jpg**  **a)**  **10 µm**  **5000x** |
| **PVA (8 wt.%):CNC:TrGO (89.5:10.0:0.5)** |
| **1 µm**  **b)**  **8000x** |
| **PVA (8 wt.%): CNC:TrGO (84.5:15.0:0.5)** |
| **1 µm**  **10000x**  **c)** |

**Figure S3.** SEM images of the final PVA:CNC:TrGO composite fibers at different magnifications a) 89.5:10.0:0.5, b) 89.5:10.0:0.5 and c) 84.5:15.0:0.5

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**Figure S4.** **Pore diameter histograms of the final** PVA:CNC (a-c) and PVA:CNC:TrGO (d-f) **composite membranes.**

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**Figure S5.** Reflectance diffuse analysis of the electrospun films a) before and b) after adding TrGO powders using different compositions and its comparison with PVA fibers.