

Supplementary Data

Poly(N-vinylpyrrolidone) - Laponite XLG nanocomposite hydrogels: characterization, properties and comparison with divinyl monomer- crosslinked hydrogels

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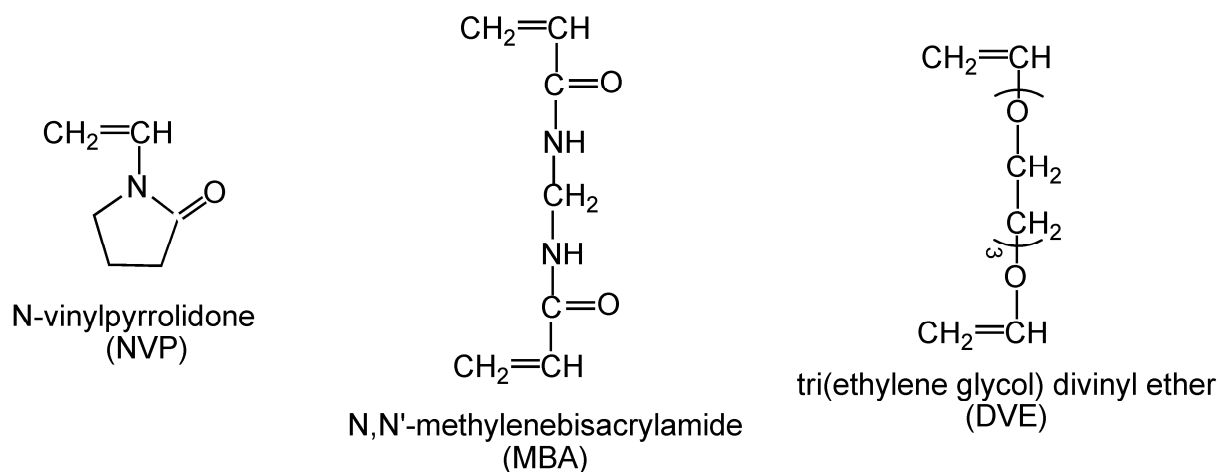
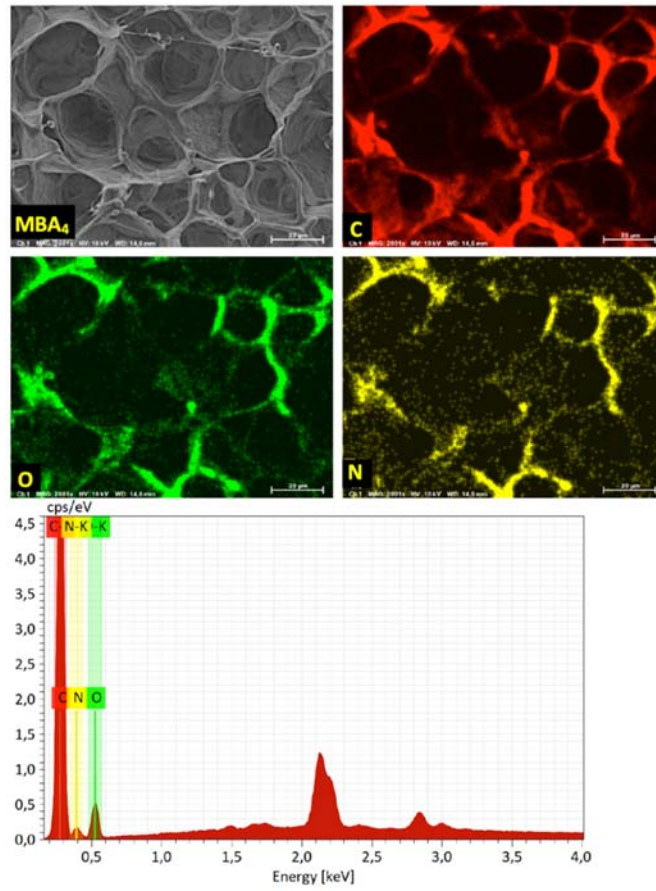
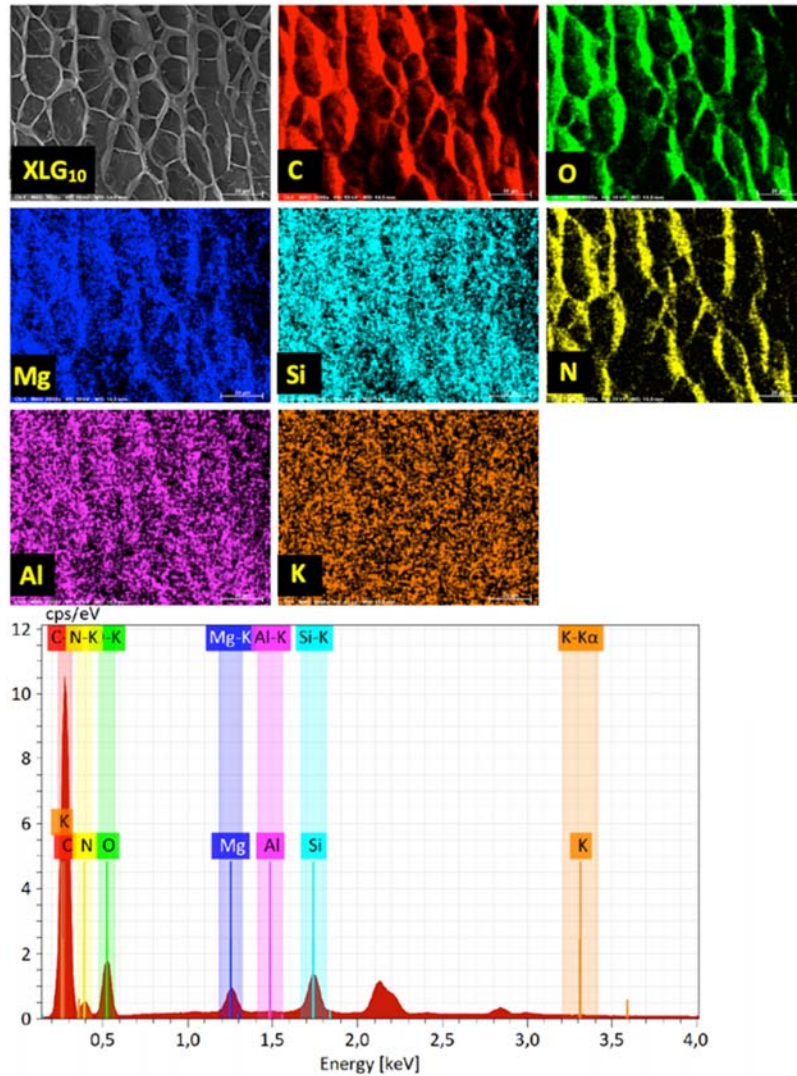


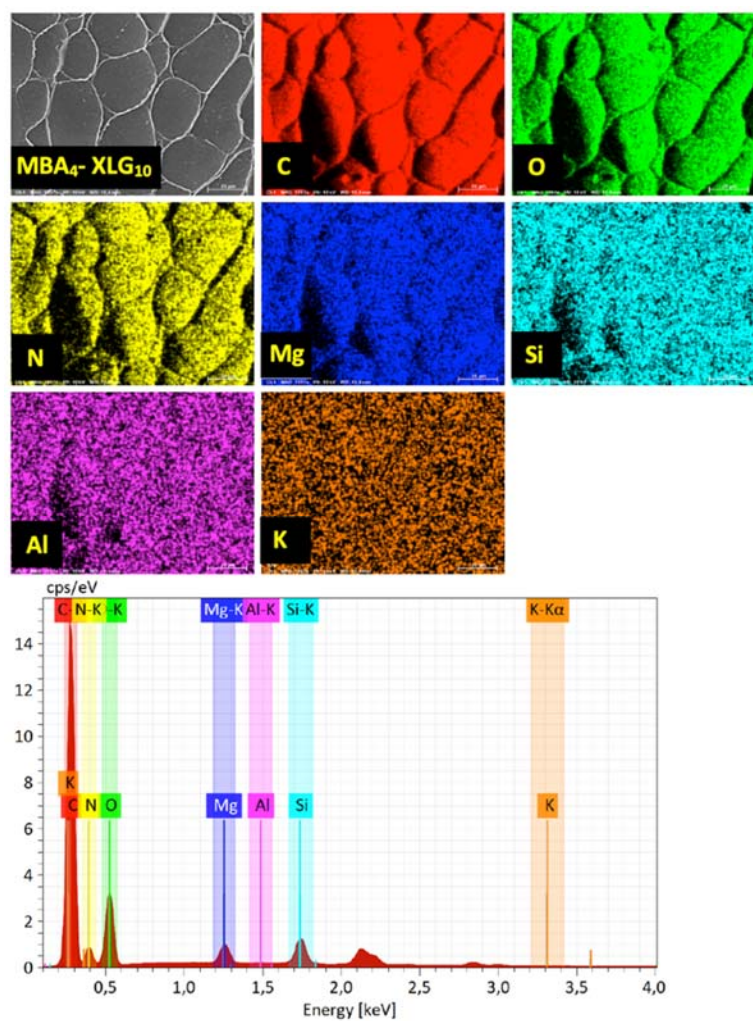
Figure S1. The chemical structures of the vinyl monomers used



a)



b)



c)

Figure S2. EDX analyses of the of synthesized hydrogels. a) HMBA₄; b) HXLG₁₀; c) HMBA₄-XLG₁₀.

Table S1. Comparison between the storage (G') and compressive shear (G) moduli of the synthesized hydrogels

| Modulus | Hydrogel sample | | | | | | |
|-----------------------|-------------------|-------------------|--------------------------------------|--------------------------------------|-------------------|--------------------|--------------------|
| | HMBA ₄ | HDVE ₄ | HMBA ₄ -XLG ₁₀ | HDVE ₄ -XLG ₁₀ | HXLG ₅ | HXLG ₁₀ | HXLG ₁₅ |
| G' (kPa) at 1 Hz | 4.27±0.25 | 2.60±0.06 | 32.40±0.21 | 10.96±0.18 | 0.22±0.01 | 1.54±0.00 | 4.32±0.17 |
| G (kPa) | 6.63±0.24 | 3.04±0.35 | 38.55±1.69 | 11.72±1.22 | 0.49±0.06 | 1.89±0.05 | 5.57±0.26 |

Table S2. The E (elastic modulus)/ G (shear modulus) ratios for the synthesized hydrogels

| Modulus | Hydrogel sample | | | | | | |
|-----------|-------------------|-------------------|--|--|-------------------|--------------------|--------------------|
| | HMBA ₄ | HDVE ₄ | HMBA ₄ - XLG ₁₀ | HDVE ₄ - XLG ₁₀ | HXLG ₅ | HXLG ₁₀ | HXLG ₁₅ |
| E (kPa) | 22.35±0.81 | 10.26±0.120 | 129.99±5.71 | 39.51±4.11 | 1.66±0.19 | 6.38±0.16 | 18.79±0.87 |
| G (kPa) | 6.63±0.24 | 3.04±0.35 | 38.55±1.69 | 11.72±1.22 | 0.49±0.06 | 1.89±0.05 | 5.57±0.26 |
| E/G | 3.37 | 3.37 | 3.37 | 3.37 | 3.39 | 3.37 | 3.37 |

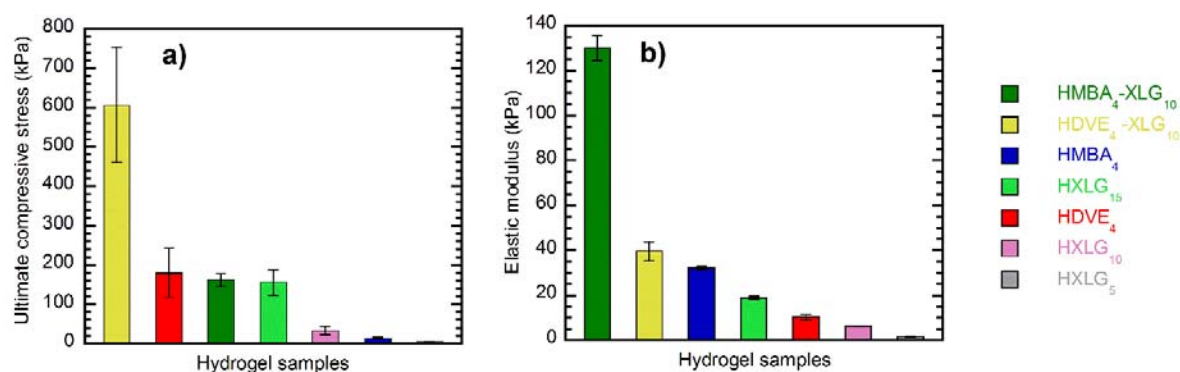


Figure S3. The descending order of the hydrogel samples from the point of view of a) ultimate compressive stress and b) elastic modulus.

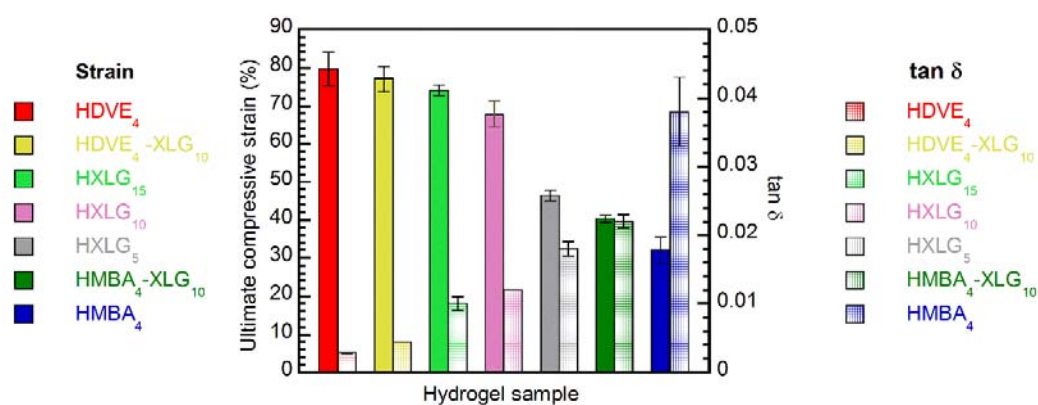


Figure S4. Comparison among the ultimate compressive strains and the loss factors of the synthesized hydrogels.