

Figure S1. SEM images of MPLs (micro-porous layers) surface with different FEP (fluorinated ethylene propylene) content (indicated percentages are by weight)

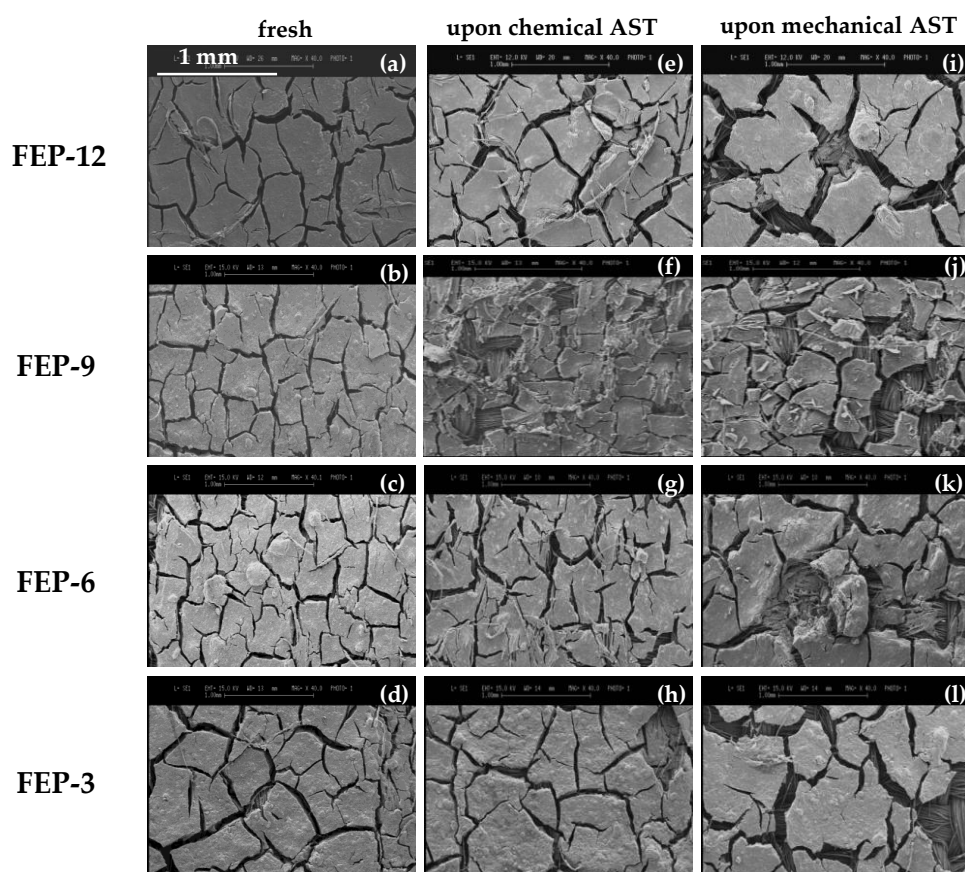


Figure S2. Fresh (a, b, c, d), 1000 h chemically aged (e, f, g, h) and 1000 h mechanically aged (i, j, k, l) MPLs containing 12, 9, 6 and 3 % wt of FEP.

All MPLs show very similar surfaces; slightly larger cracks can be tentatively identified on FEP-3 (d) and this might be a reason of its lower performance at any operating condition. Mechanically aged samples exhibit more damaged surfaces with more evident and wider cracks than chemically treated ones. This might reduce capillary pressure across the MPLs making water removal more difficult and worsening mass transport properties. Indeed mechanically aged samples showed worse performance than corresponding chemical ones. FEP-12 seems to be the MPL which better resists stress tests and this may cause the observed higher durability.

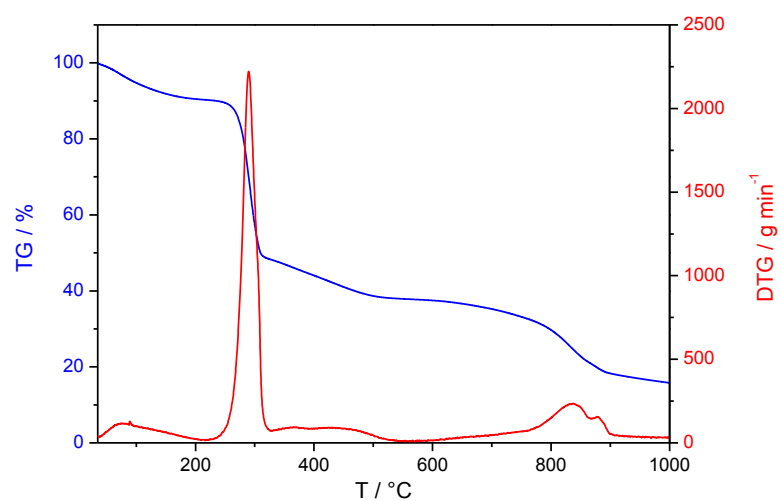


Figure S3. Thermogravimetric analysis of CMC (carboxymethylcellulose)