Supplementary Information

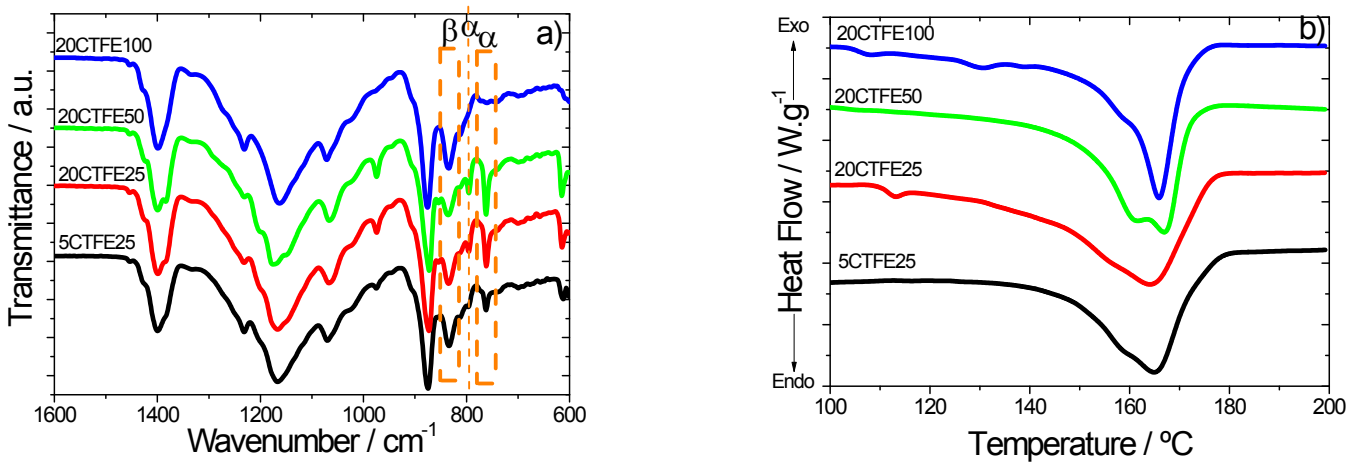

FIGURE 1 – a) FTIR-ATR spectra and b) DSC scans for all samples

The quantification of the crystalline phases present in the samples was performed using the specific bands at 766 cm^{-1} and 840 cm^{-1}, identified with the presence of the α- and β-phases, respectively, and following the method explained in [1]. Assuming the samples are composed just by the α and β phases, the β phase content is calculated by:

$$F(\beta) = \frac{X_\beta}{X_\alpha + X_\beta} = \frac{A_\beta}{(K_\beta / K_\alpha)A_\alpha + A_\beta} \quad (1)$$

were $F(\beta)$ represents the β phase content; A_α and A_β the absorbencies at 766 and 840 cm^{-1}, corresponding to the α and β phase material; K_α and K_β are the absorption coefficient at the respective wave number and X_α and X_β the degree of crystallinity of each phase. The value of K_α is 6.1×10^4 and K_β is 7.7×10^4 cm^2/mol [1].

The degree of crystallinity of the PVDF-CTFE membranes was obtained by the following equation:

$$X_c = \frac{\Delta H_m}{x\left(\Delta H_{100\%cryst.}\right)_\alpha + y\left(\Delta H_{100\%cryst.}\right)_\beta} \times 100 \quad (2)$$

where x is the weight fraction of the α phase, y is the weight fraction of the β phase, $(\Delta H_{100\%crystalline})_\alpha$ is the melting enthalpy of pure crystalline α-PVDF and $(\Delta H_{100\%crystalline})_\beta$ is the melting enthalpy of pure crystalline β-PVDF which is reported to be 93.04 J/g and 103.4 J/g respectively [1].

1. Martins, P.; Lopes, A. C.; Lanceros-Mendez, S. Progress in Polymer Science 2014, 39, 683-706.