**Hierarchically porous S/N/O enriched carbons from polyacrylonitrile-based block copolymers for selective separation of gas streams**

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**Supplementary Materials**: Scheme S1. Schematic illustration of the formation of graphitic carbon from a PAN-based BC precursor; Scheme S2. Possible positions of sulphur incorporated into the graphitic carbon network; Figure S1. Raman spectra of BC10/90-O (solid line) and BC10/90-S (dashed line) in the 900-1900 cm-1 range



**Scheme S1**. Schematic illustration of the formation of graphitic carbon from a PAN-based BC precursor, also including the information resulting from XPS measurements (see examples in Figure 2 and corresponding discussion). PMMA decomposition is not reported, as it essentially consists of volatilization by unzipping. Adapted from: Fitzer, E. *Carbon* **1989**, *27*, 621–645.



**Scheme S2.** Possible positions of sulphur incorporated into the graphitic carbon network, taking into account the information resulting from XPS measurements (see examples in Figure 2 and corresponding discussion). Adapted from: Kiciński, W.; Szala, M.; Bystrzejewski, M. *Carbon N. Y.* **2014**, *68*, 1–32.



**Figure S1.** Raman spectra of BC10/90-O (solid line) and BC10/90-S (dashed line) in the 900-1900 cm-1 range.