## **Electronic Supporting Information**

Hg<sup>2+</sup>-selective sensing film based on the incorporation of a spirocyclic phenilthiosemicarbazide rhodamine derivative into a novel hydrophilic water-insoluble copolymer synthesized by reverse-ATRP

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Fig. ESI-1. Photographs of the measurement device. a) home-made cell with a sensing film; b and c) Picture of the tip of the optical fibre and home-made cell.



Fig. ESI-2. Photograph of the sensing films prepared by drop coating.



Fig. ESI-3. <sup>1</sup>H-NMR spectra of the synthetized polymers.



**Fig. ESI-4.** Effect of the percentage of HEMA in the composition of the polymer over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-5.** Effect of the concentration of polymer P30 over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-6.** Effect of the concentration of glycerol over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-7.** Effect of the concentration of FC1 over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-8.** Effect of the concentration of KTpClPB over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-9.** Effect of the kind of buffer solution over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-10.** Effect of the concentration of phosphate buffer solution at pH 7.0 over the sensing response. See table 2 for the optima instrumental and measurement conditions.



**Fig. ESI-11.** Calibration curve See table 2 for the optima instrumental and measurement conditions.