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Composite β-$AgVO_3$@$V^{5+}_{1.6}V^{4+}_{0.4}O_{4.8}$ hydrogels and xerogels for iodine capture.

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SUPPORTING INFORMATION

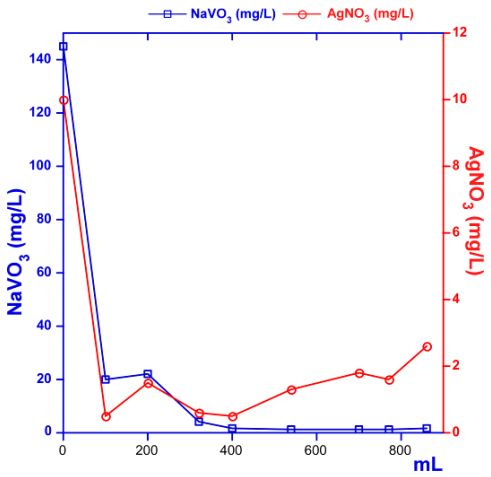

Fig. S1 -Silver and vanadium concentration against the volume of miliQ water passed through the hydrogel during the cleaning process.

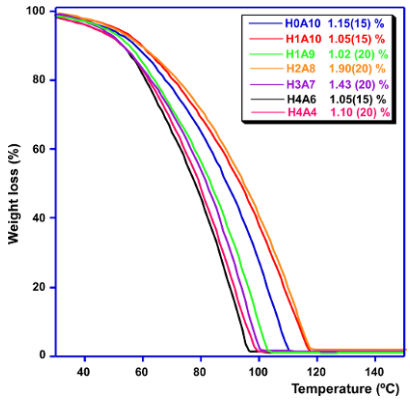

Fig. S2.- Thermogravimetric curves for selected hydrogels.

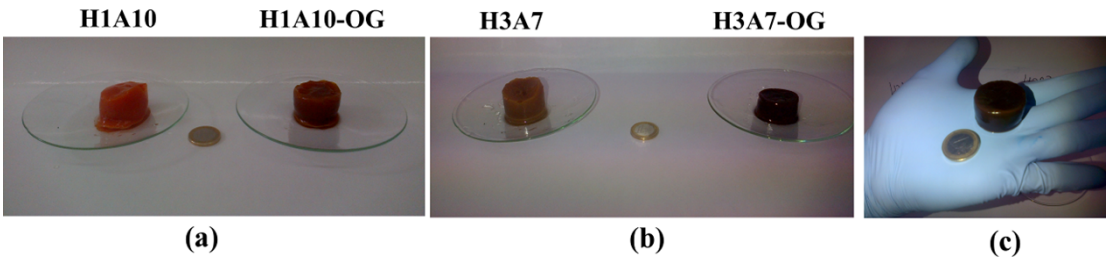

Fig. S3.- (a) H1A10 hydrogel and H1A10-OG organogel (acetone). (b) H3A7-G hydrogel and H3A7-OG organogel (acetone) (c) The hydro and organogels can be easily handled. 1 euro coin has been used as size reference.

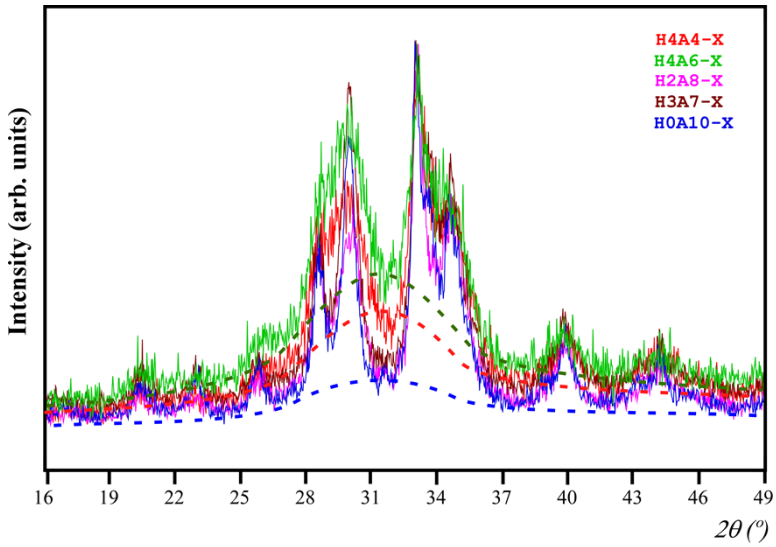

Fig. S4.- Detailed 2θ(º) interval of the XRD patterns. The background intensity increase between 25 and 40º in 2θ(º) has been highlighted with discontinuous lines.

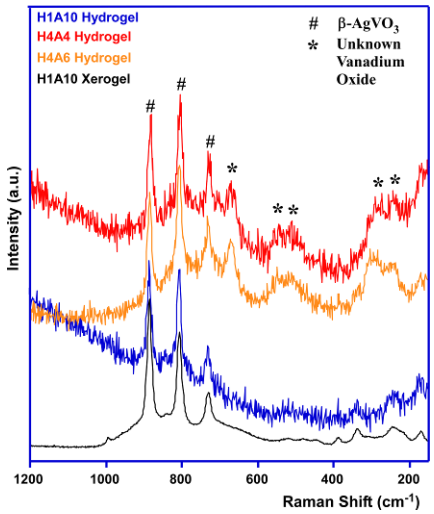

Fig. S5.- Raman spectra for H1A10-X xerogel and H1A10, H4A6 and H4A4 hydrogels.

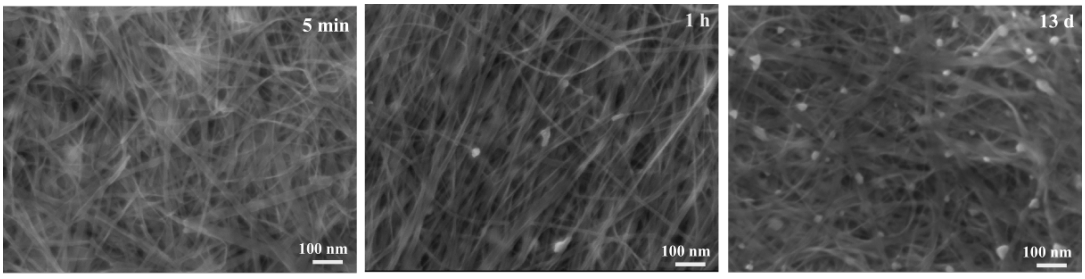

Fig. S6.- SEM micrographs of H1A10 hydrogel after 5 min (a), 1 hour (b) and 13 days (c) of gelation process.

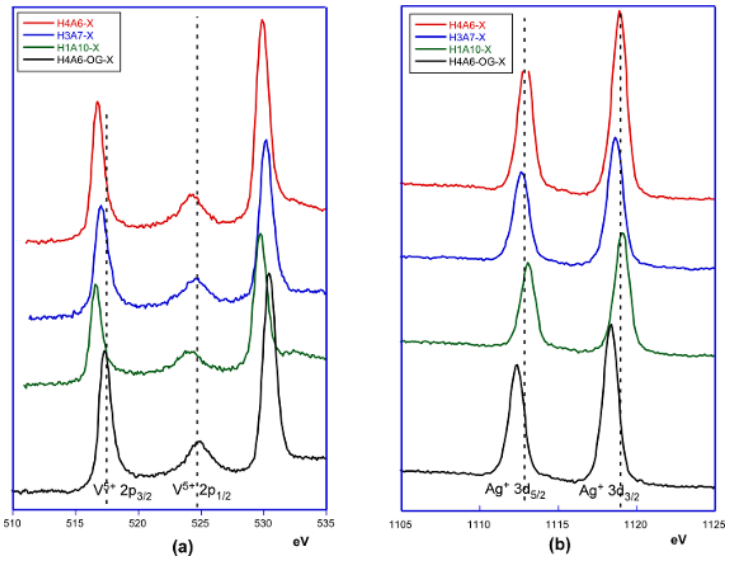

Fig. S7.- High resolution XPS spectra for selected xerogels obtained from hydrogels and organogels.

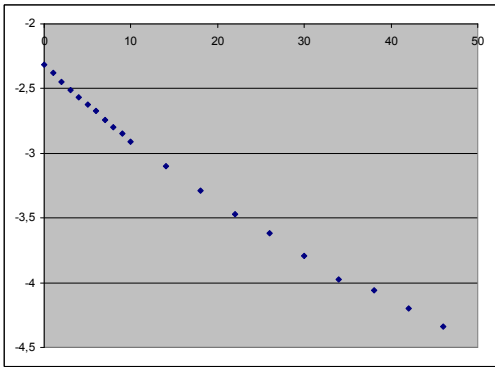

Fig. S8.- Time dependence the Ln[C_{MB}] for the H1A10 xerogel.

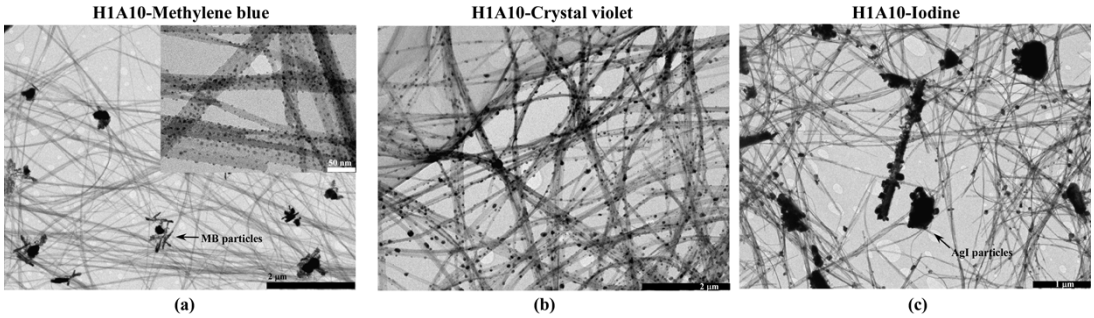

Fig. S9.- TEM micrographs of H1A10 hydrogels after the MB, CV and iodine absorption experiments.

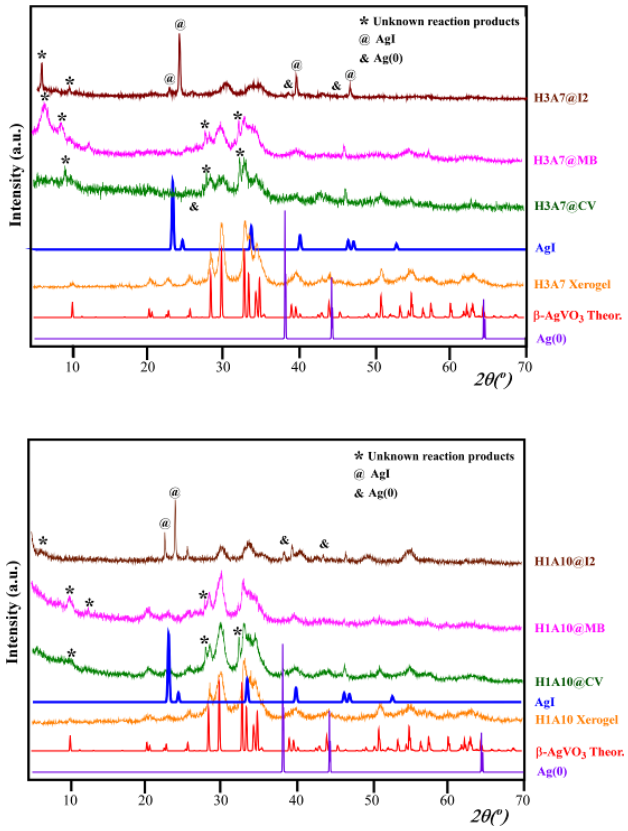

Fig. S10.- XRD patterns for H1A10 and H3A10 hydrogels after the MB, CV and I_2 adsorption experiments. For sake of comparison, the theoretical X-ray diffraction patterns for the β-$AgVO_3$, AgI and Ag(0) have been plotted.

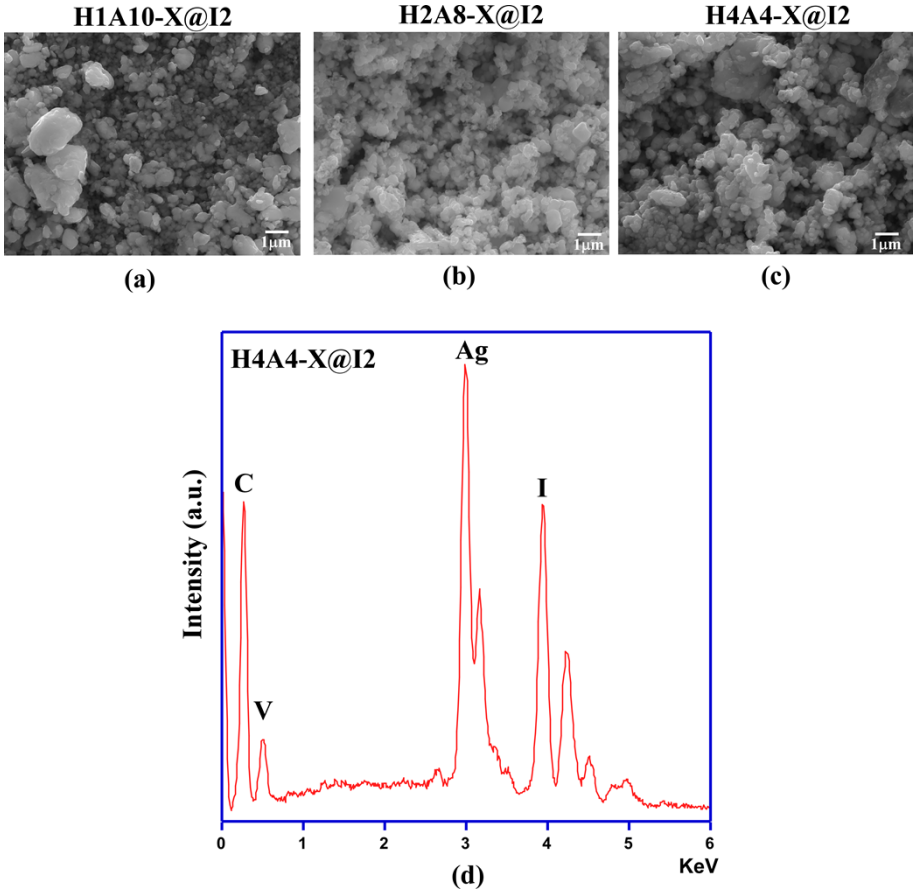

Fig. S11.- (a) – (c) SEM micrographs after the iodide adsorption experiments. (d) EDX spectra of H4A4-X@I2 after the iodide adsorption experiments.

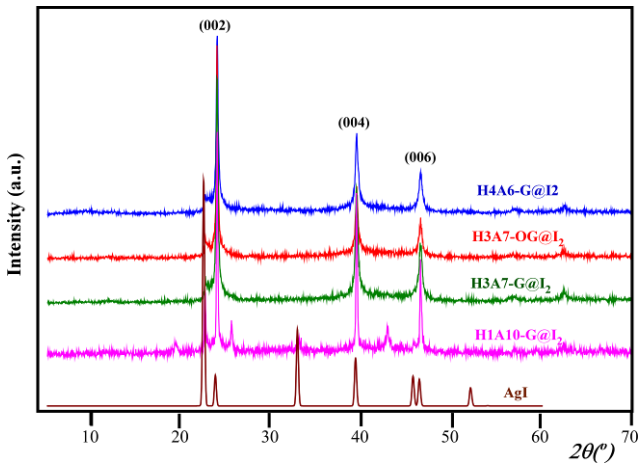

Fig. S12.- XRD patterns for H1A10, H4A6 and H3A7 hydrogels and H3A7-OG organogel after I_2 adsorption experiments. The initial concentration for the I_2 solution was 10^{-2}M.

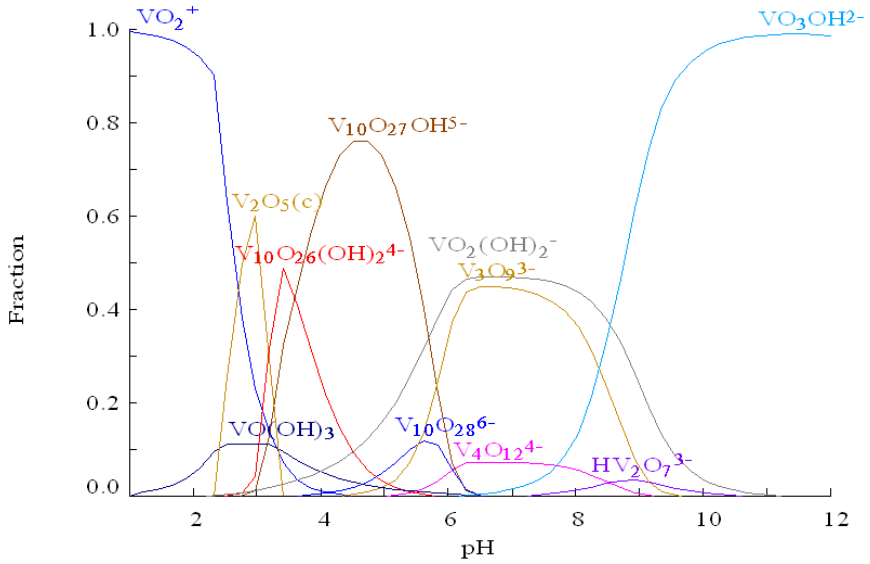

Fig. S13.- Calculation of the possible vanadium species in solution after the iodide adsorption experiment. The chemical diagrams have been calculated taking into account the initial iodide concentration, and calculating the concentration of silver and vanadium from the mass of hydrogels/xerogels used in the experiments. All the calculations have been carried out supposing that the experiments are carried out in water. The possible vanadium species obtained in ethanol solutions could be very different. But it is clear that the vanadium atoms are incorporated to the solution during the experiment.

Sample	Ag Atomic %	I Atomic %	V Atomic %
H0A10-XG	49.2(5)	50.4(6)	0.3(1)
H1A9-XG	47.8(2)	51.2(2)	1.1(2)
H1A10-XG	48.6(4)	50.9(4)	0.4(2)
H2A8-XG	50.0(2)	49.5(3)	0.4(1)
H3A7-XG	48.8(2)	50.3(2)	1.0(2)
H3A7-OXG	49.0(6)	49.6(5)	1.4(2)
H4A6-XG	49.3(3)	49.6(1)	1.2(3)
H4A6-OXG	48.9(5)	49.5(4)	1.6(2)
H4A4-XG	46.5(3)	48.2(3)	5.3(9)

Table. S1.-.Atomic % of vanadium, silver and iodine in the xerogel samples after the adsorption experiment of iodine.