

## Supplementary Materials

### Concentration dependent emission of sol-gel layers doped with Rhodamine 19 and 6G as the route to tunable luminescent materials

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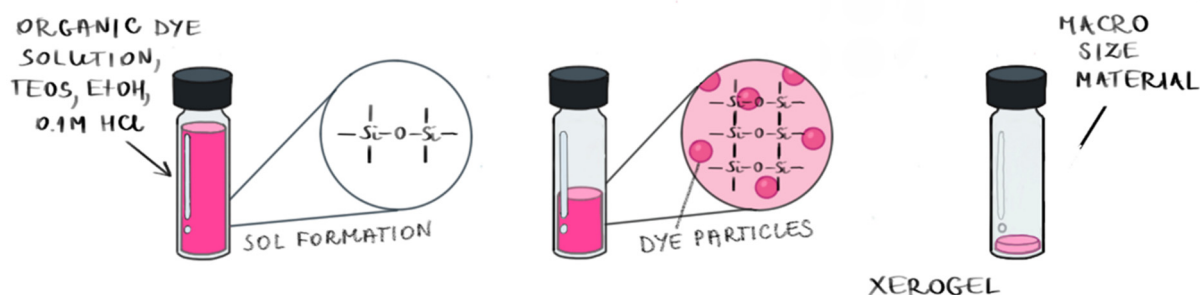
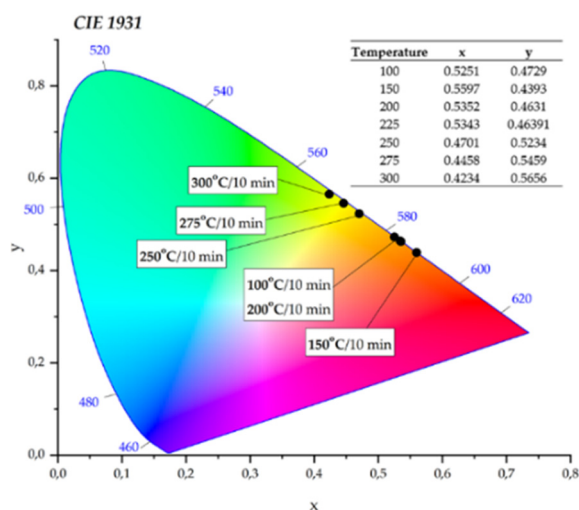
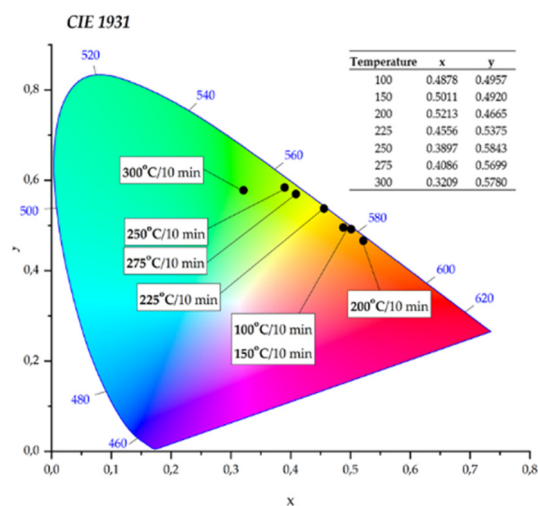


Figure S1. Illustrative scheme of sol-gel synthesis of gel doped with rhodamine dyes.

### S1. Spectroscopic analysis

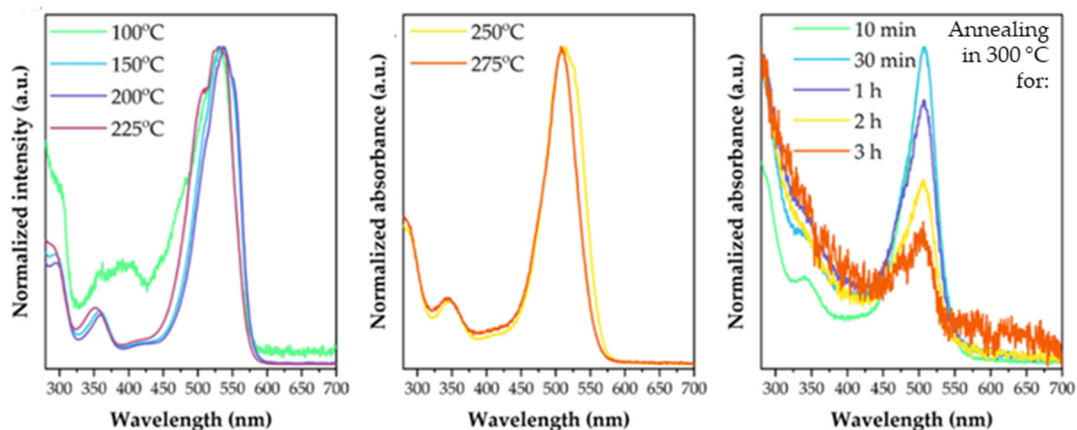


(a)

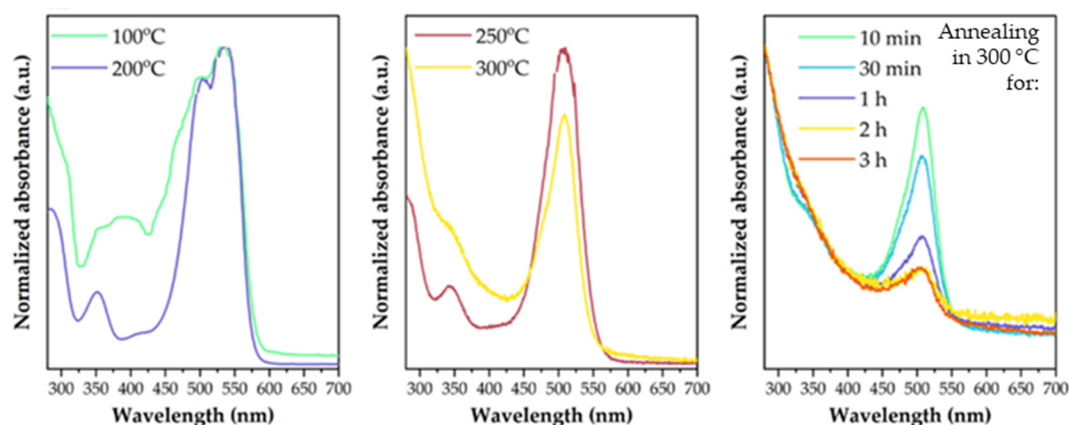


(b)

Figure S2. Chromacity diagram for SiO<sub>2</sub> doped with (a) Rh19; (b) Rh6G, after annealing.

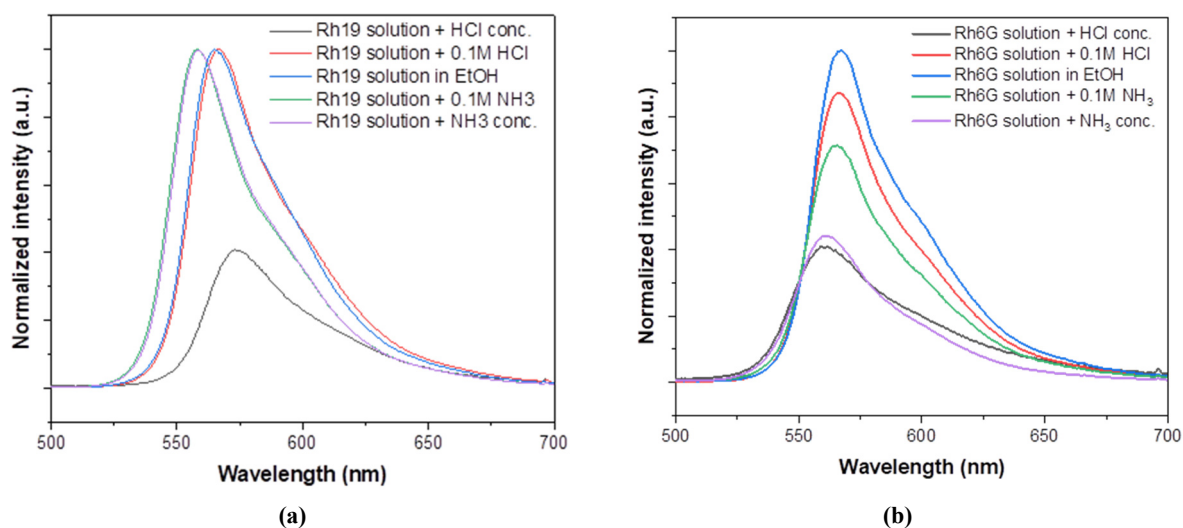


(a)



(b)

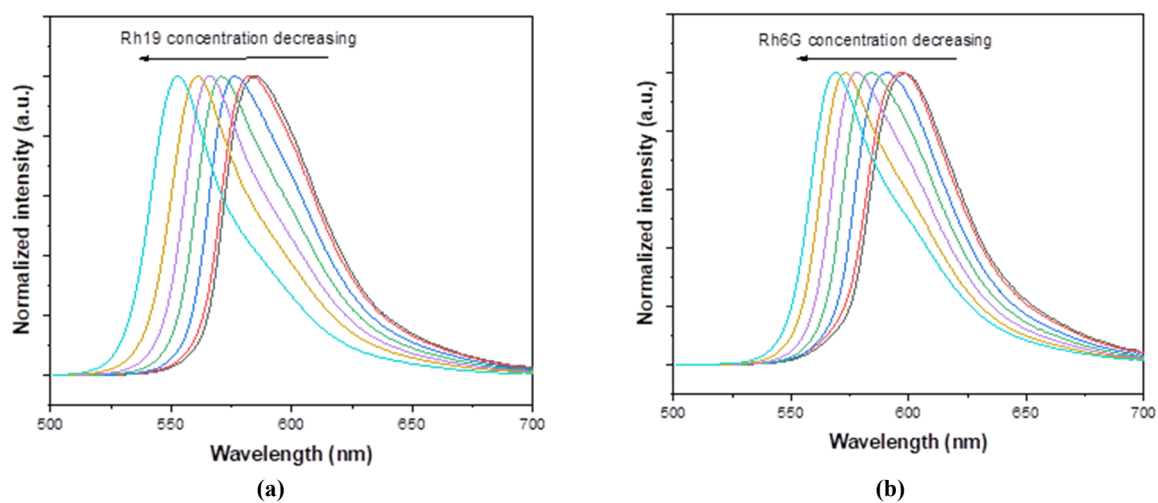
**Figure S3.** Absorption spectra recorded for different annealing temperatures for (a) SiO<sub>2</sub>:Rh19; (b) SiO<sub>2</sub>:Rh6G.



(a)

(b)

**Figure S4.** Emission spectra recorded for different pH for (a) Rh19; (b) Rh6G.



(a)

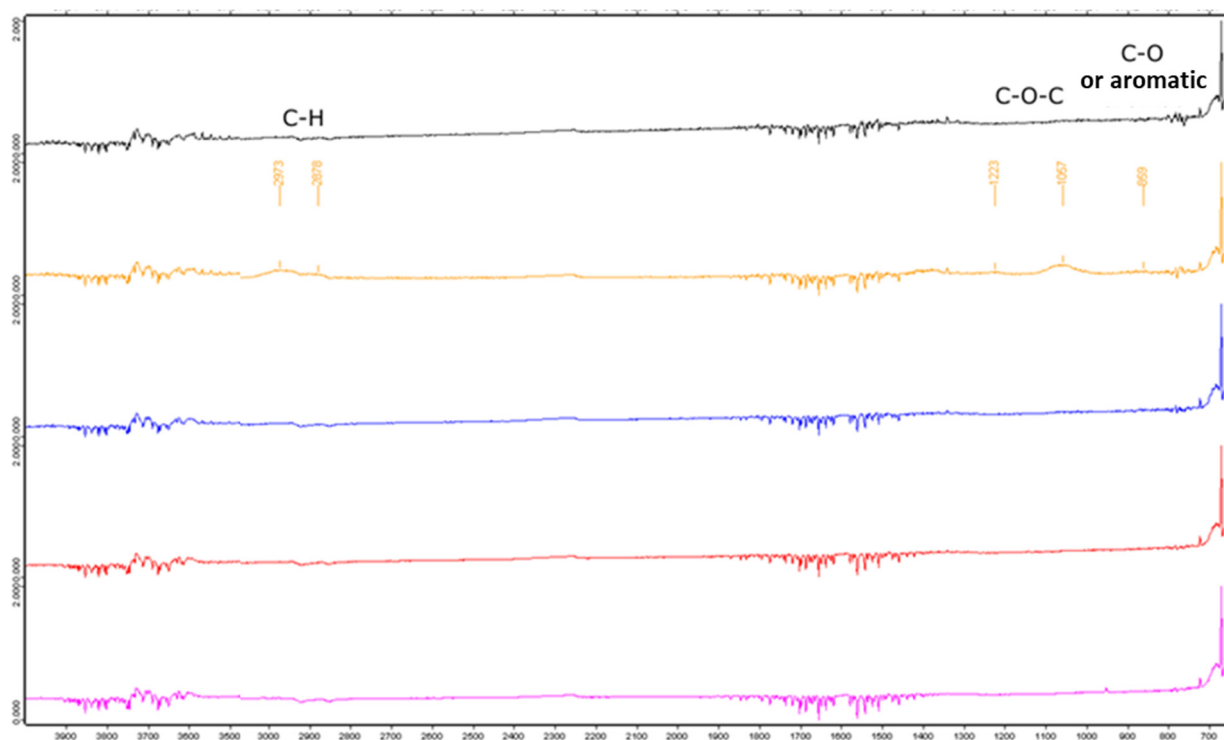
(b)

**Figure S5.** Emission spectra recorded for different concentrations for (a) Rh19; (b) Rh6G.

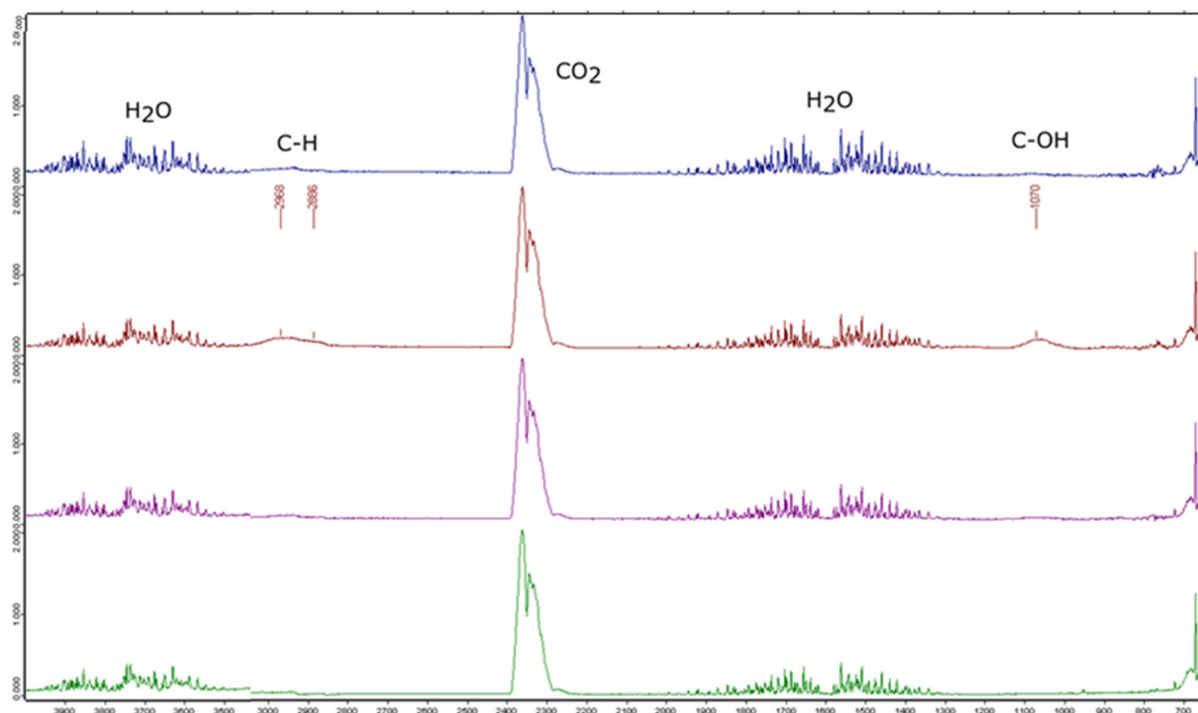
## S2. Thermal analysis

**Table S1.** List of temperatures of the maximum rate of degradation.

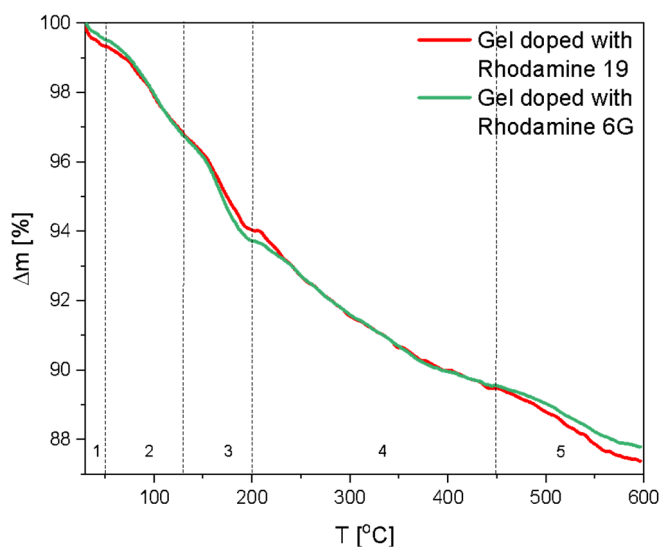
Sample	DTG <sub>1</sub> [°C]	DTG <sub>2</sub> [°C]	DTG <sub>3</sub> [°C]	DTG <sub>4</sub> [°C]	DTG <sub>5</sub> [°C]
SiO <sub>2</sub> : Rh19	-	100	164	226	546
SiO <sub>2</sub> : Rh6G	-	100	166	245	514



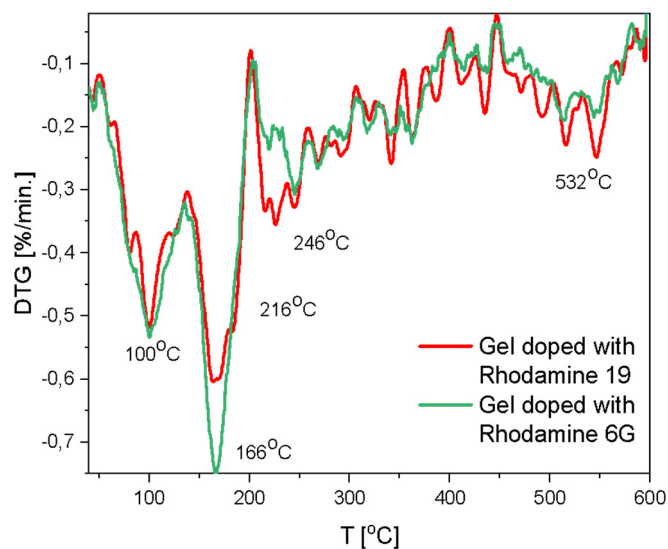
**Figure S6.** FTIR results of the SiO<sub>2</sub> : Rh6G sample: 100 °C, 170 °C, 240 °C, 350 °C, 518 °C.



**Figure S7.** FTIR results of the SiO<sub>2</sub> : Rh19 sample: 100 °C, 170 °C, 225 °C, 545 °C.



**a)**



**(b)**

**Figure S8.** Results of thermogravimetric analyzes: **(a)** weight loss graphs, **(b)** first derivative of weight loss graphs. With green color gel doped with Rhodamine 6G is marked, while with red – Rhodamine 19.