Supporting Information

for

Alternative method to measure oxygen solubility in organic solvents through optical oxygen sensing

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1) Oxygen sensitive indicator

The oxygen-sensitive indicator employed to make the capillary sensor was the platinum(II)-*meso*-tetra(4-fluorophenyl)tetrabenzoporphyrin (PtTPTBPF). This NIR porphyrin was selected because it can be excited at wavelength higher than 600 nm and therefore is compatible with the measuring device used (Firesting – oxygen meter). The spectral characteristics and the chemical structure are shown in figure SI.1. Furthermore this dye is characterized by high photostability and low tendency to aggregate in polystyrene.

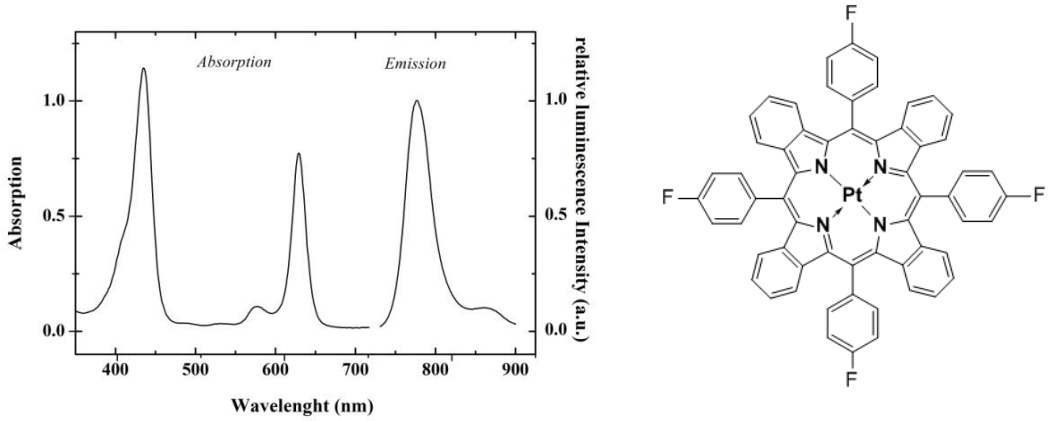

Fig. S.1 Left: absorption and corrected emission spectra of PtTPTBPF in polystyrene. Right: chemical structure of the platinum(II)-*meso*-tetra(4-fluorophenyl)tetrabenzoporphyrin (PtTPTBPF)

2) Calibration of the sensor

As reported in the paper the capillary sensor was calibrated in water, methanol, ethanol and propan-2-ol. Here we report the plots of lifetime vs oxygen partial pressure.

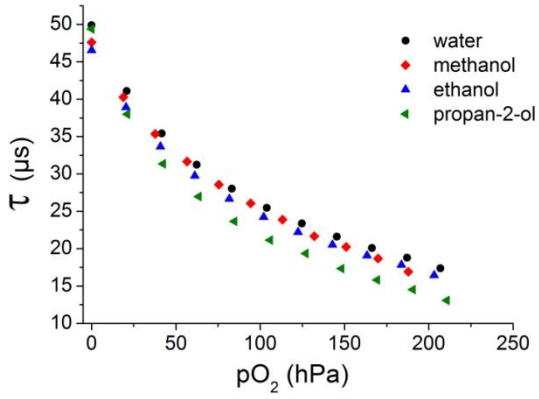

Fig. S.2 Plots of lifetime (τ) vs oxygen partial pressure.

The Stern-Volmer plots (Figure 1 in the paper) were fitted with the following modified Stern-Volmer equation (two-site model)

$$\frac{I}{I_0} = \frac{\tau}{\tau_0} = \frac{f}{1+K_{sv1}pO_2} + \frac{1-f}{1+K_{sv2}pO_2} \qquad \text{Equation 1}$$

Where *f* represents the fraction of the total emission for the first site and K_{sv1} and K_{sv2} are the Stern-Volmer quenching constants for the two sites.

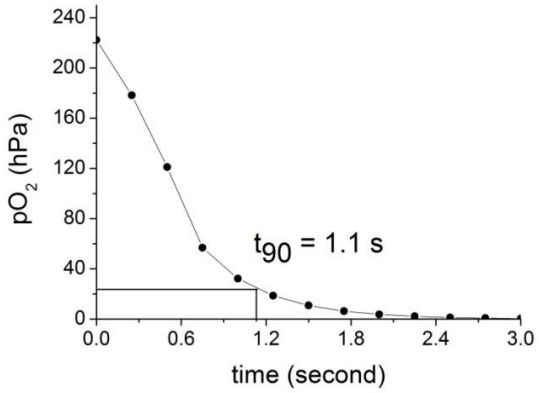

Fig. S.3 Response time of the capillary sensor.