Supporting Information

Real-time Naked-eye Multiplex Detection of Toxin and Bacteria using AIEgens

with the Assistance of Graphene Oxide

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NPs concentration calculation.

To determine the concentration of BTPEBT NPs in aqueous suspension, fine powder of the NPs suspension (1 mL) was obtained by freeze-drying for 48 hours. The density of the NPs suspension is estimated as \sim 1 g/cm³ since BTPEBT NPs are stable in water. The volume of the NPs is calculated by using the diameters measured by DLS: The NPs concentration could be calculated by the following equation:

Total number of BTPEBT NPs in 1 mL of stock solution were calculated as an example:

Total number of BTPEBT NPs

$$=\frac{Total \ volume \ of \ BTPEBT \ NPs}{Average \ volume \ of \ each \ NP} =\frac{\frac{1.542 \times 10^{-2}g}{1g/mL}}{\frac{4}{3}\pi (7.5 \times 10^{-7})^3 mL} = 8.72 \times 10^{15}$$

BTPEBT NPs concentration
$$= \frac{\frac{8.72 \times 10^{15}}{6.02 \times 10^{23} mol^{-1}}}{1 \times 10^{-3} L} = 14.5 \mu M$$

Determinations of quantum yield

The quantum yield (η) of BTPEBT NPs were measured using Rhodamine 6G in ethanol as reference. The quantum yield were calculated by the following equation

$$\eta = \eta_R \frac{N^2 A_R I}{N_R^2 A I_R}$$

Where η_R are the quantum yield of Rhodamine 6G, N and N_R are the refractive index of solvent, A and A_R are the absorbance at the excitation wavelength, I is the integrated fluorescence intensity.