

Fabrication of Embedded Polydiacetylene Particles as Solution-Based Sensor via Microfluidic System for Detection of Hydrocarbon Oils

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Polydiacetylene(PDA) is an interesting conjugated polymer that has unique fluorescence and blue-to-red colorimetric transition feature upon external stimuli. Self-assembled PDAs exhibited extensive applications as bio- and chemo-sensors. This work describes a more stable and more economical solution-based sensor, in which self-assembly PDA particles are fabricated by a microfluidic device and a single PDA particle is embedded in a PDMS gel. Exposing these encapsulated particles to hydrocarbon oils with various carbon chain lengths have shown distinguishable fluorescence response and color change.