



## Selective detection of TNT using molecularly imprinted polymer microsphere

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### ABSTRACT

The rapid detection of nitroaromatic explosive in low concentration sample or complex matrices is of importance. In this paper, 2,4,6-trinitrotoluene (TNT) molecularly imprinted polyvinyl alcohol microspheres, MIP-CPVA, are synthesized in inverse suspension system using TNT as template, PVA as functional polymer, and glutaraldehyde as cross-linker. The MIP-CPVA possesses high affinity, specific recognition ability, and excellent selectivity towards TNT. The saturated adsorption capacity could reach to  $10.62 \text{ mg g}^{-1}$ , and the selectivity coefficients relative to DNT is 12.44. In addition, MIP-CPVA can be used as the column packing of gas chromatograph to separate and detect nitroaromatic, and the result is very satisfactory.

*Keywords:* Molecularly imprinted polymer; 2,4,6-trinitrotoluene; Polyvinyl alcohol; Gas chromatograph; Separation

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