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OFET based explosive sensors using diketopyrrolopyrrole and metal organic framework composite active channel material

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Abstract

Detection of explosives using organic compounds poses many challenges, primarily because of the stability of the organic compound at nominal operating conditions. This paper addresses the aforementioned challenge by reporting a new organic material composite, whose stability is suitable for practical applications. Additionally, the reported organic composite is also capable of detecting vapors of Nitro based explosive compounds such as 2, 4, 6-trinitrotoluene(TNT) and 1, 3, 5-trinitro-1, 3, 5-triazacyclohexane (RDX). An alternating copolymer of thiophene flanked diketopyrrolopyrrole with thienylene-vinylene-thienylene (PDPP-TVT) was used as a solution

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