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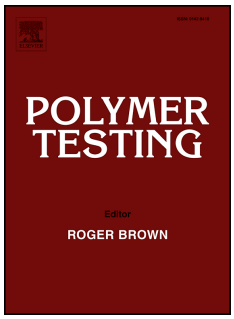

Water based scintillator ink for printed X-ray radiation detectors

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Material Performance

Water based scintillator ink for printed X-ray radiation detectors

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ABSTRACT: Environmentally-friendly materials are being pursued world-wide for applications across a wide range of technologies. For application in spray-printed radiation detectors, water-based scintillator inks have been produced by combining a thermoplastic elastomer poly(vinyl) alcohol (PVA) and $Gd_2O_3:Eu^{3+}$ scintillator nanoparticles. Formulations of these green inks with different concentrations of scintillator nanoparticles have been assessed in terms of their rheological properties: the optimal concentration of scintillator nanoparticles in the water-based ink for spray-printing was 0.75 wt.%. This optimized ink formulation exhibits Newtonian behavior with a viscosity around 100 cps and