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Abstract

Disposable Sensors for Monitoring Chronic Wounds †

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The longer life expectancy in Western countries brings forth the challenge of a growing burden of chronic illnesses like chronic wounds. Wearable sensors are creating great expectations for improving knowledge on the biochemical processes in action in these wounds and combining quality of treatment and low cost. We report here the fabrication, testing and validation of disposable sensors, namely a resistive sensor based on reduced graphene oxide for the measurement of temperature and a potentiometric sensor based on graphene oxide for the measurement of pH in the wound bed. In-vitro validation with model solutions and real samples established accuracies of ±0.5 °C (range 20–40 °C) and ±0.2 pH units (range 5.5–9 pH units). Issues concerning biocompatibility for the use in contact with the wound bed are addressed as well as the potential applications in other fields.