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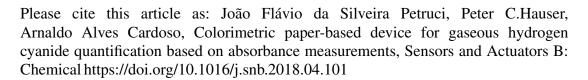
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Colorimetric paper-based device for gaseous hydrogen cyanide

quantification based on absorbance measurements

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Highlights:

• An optimized analytical method for gaseous HCN detection is presented

Colorimetric reaction is performed on a microfluidic paper-based

analytical device

The reagents are easy to prepare and the reaction occurs in aqueous

medium

• Absorbance measurements were directly employed to acquire analytical

The point-of-care device is suitable for gaseous HCN and aqueous cyanide

determination in several samples

ABSTRACT

Hydrogen cyanide is a highly toxic compound employed for

applications such as electroplating, production of organic solvents, fish

stunning, and even as a chemical weapon. In this work, we describe a new

microfluidic paper-based assay for selective cyanide determination, based on

the reaction of the cyanide anion with palladium dimethylglyoximate (DMG)

followed by colorimetric reaction of DMG with nickel. Quantification was

performed by measuring the absorbance of light passing through the paper,

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