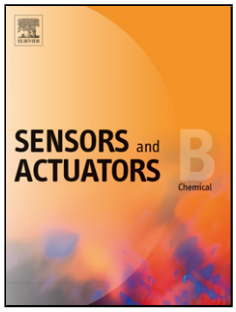

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Quantification of Chloride and Iron in Sugar factory effluent using Long period fiber grating chemical sensor

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Highlights

- This is first Paper reporting LPG chemical sensor used in waste water analysis.
- . LPG sensor measured 97.85 ppm of Cl & 0.274 ppm of Fe ions in sugar factory treated effluent.
- . Sensitivity of sensor for Cl and Fe ions are 26 & 131pm/ppm respectively.
- . Results verified by standard waste water analysis techniques.
- . Perpetual online monitoring of elements in waste-water effluent possible.

Abstract:

This paper is an effort to introduce application of Long period fiber grating (LPG) sensors in perpetual monitoring of industrial waste water effluent. A change in ambient refractive index (RI) of an LPG causes a shift in its resonant wavelength. This RI sensitivity of LPG has been used to design a simple and highly sensitive chemical sensor to determine the concentration of Chloride (Cl) and Iron (Fe) ions present in the treated waste water effluent of sugar factories. The concentrations of Cl and Fe ions in the effluent sample determined by our sensor are 97.85 ppm and 0.274 ppm respectively. The results are in good agreement with that of two standard