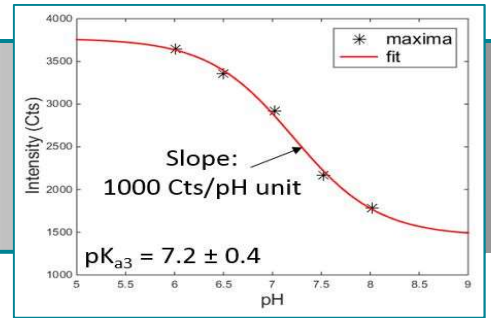


## TECHNOLOGY OFFER

### Optical sensor for calibration-free pH measurement

pHmeter / sensor / calibration free instrumentation / optical fiber / process monitoring



#### CONTEXT

Current pH sensors do not fully meet requirements for reliable and continuous remote control of industrial processes. They require high maintenance costs, are fragile and need frequent manual calibrations to maintain their accuracy (highly dependent on human error, buffer solution quality, etc.). Therefore, this calibration free pHmeter ensures increased reliability and accuracy while being user friendly.

#### DESCRIPTION

The innovation is a pH sensor without calibration which consists of an optical fiber (diameter 200  $\mu\text{m}$ ) comprising pH sensitive fluorescent molecules. The latter are excited *via* the optical fiber and emit a fluorescence spectrum. This spectrum is converted into a pH value *via* a dedicated mathematical physico-chemical model. This model eliminates the need for calibration which brings reliability and precision to pH measurement.

#### COMPETITIVE ADVANTAGES

- Measurement device without calibration
- Increased reliability and accuracy (limitation of human handling, consideration of the aging of the probe by the mathematical model, no dependence on the resistance of the buffer solutions over time)
- No consumables (buffer solutions)
- Remote reading, therefore usable in distant and/or hostile environment (radiation, electromagnetic field, etc.)
- Continuous measurement (real-time process monitoring)
- Low manufacturing cost
- Allows measurements in world record small volumes (nL)



#### Market & Application

**PH measurement whatever the sector and the volumes to be analyzed**

- Applicable from bench to industrial process control
- water quality control, fermentation process, chemical, pharmaceutical, cosmetic industry ...



#### Stage of development

Technology validated at laboratory scale (TRL 4)



#### Research Team

FEMTO-ST Institute, UMR CNRS 6174



#### Intellectual property

Patent filing : FR 1901263



#### Partnership

Co-development to orient the technology according to the needs of manufacturers

#### CONTACT-US

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