



ocean optics product points

Optical pH Sensors



A breakthrough chemical sensing technology allows non-intrusive pH monitoring for real-time, in situ measurement

We've developed a new generation of sol gel materials to encapsulate pH dyes for optical pH sensing. These materials can be applied to various sampling devices - including cuvettes, optical fibers and probes -- and combined with miniature fiber optic spectrometers and accessories for convenient, non-intrusive monitoring. What's more, our pH-sensitive transducer materials can be formulated as self-adhesive patches that can be integrated into biological and other types of sample containers. Contact an Applications Scientist for pH sensor availability, which is targeted for spring 2008.

About Optical Sensors

We build sensors by placing a transducer material at the tip of an optical fiber or by applying the material to various vessels for biological and other samples. These materials change optical properties in response to specific analytes in their immediate environment, which we measure using our miniature fiber optic spectrometer. The pH sensing surface, for example, is a nano-porous material formulated to trap pH indicator molecules in a cage-like structure. The cage is hydrophilic, so hydronium ions freely diffuse through the film. The trapped bromo-cresol green ions change color when they bind or dissociate with hydronium ions. The result? A pH sensor that can be embedded where you want it, free from the handling problems associated with electrodes and other pH measurement technologies.

Key Features of Optical pH Sensors

- Biocompatibility
- Fast response time (within seconds)
- Gamma resistance
- Large pH range: low pH (1-5), biological pH (5-9) and high pH (7-12)
- Disposable
- Low maintenance
- Single-point calibration

Ask us about our "smart" pH cuvette - a cuvette with embedded pH sensor that turns your spectrophotometer into a drift-free pH meter!

Absorbance of Sol Gel Film Doped with pH Indicator

