

## What makes the PETROSENSE<sup>®</sup> Fiber Optic Technology unique?

The PetroSense<sup>®</sup> products incorporate DecisionLink's patented fiber optic chemical sensor (FOCS<sup>®</sup>) technology with digital electronics and a microprocessor to make PetroSense<sup>®</sup> unique in the marketplace. The chemical coating on the fiber optic sensor has a specific affinity for hydrocarbons which makes the FOCS<sup>®</sup> systems both repeatable and accurate for total petroleum hydrocarbon (TPH) measurements.

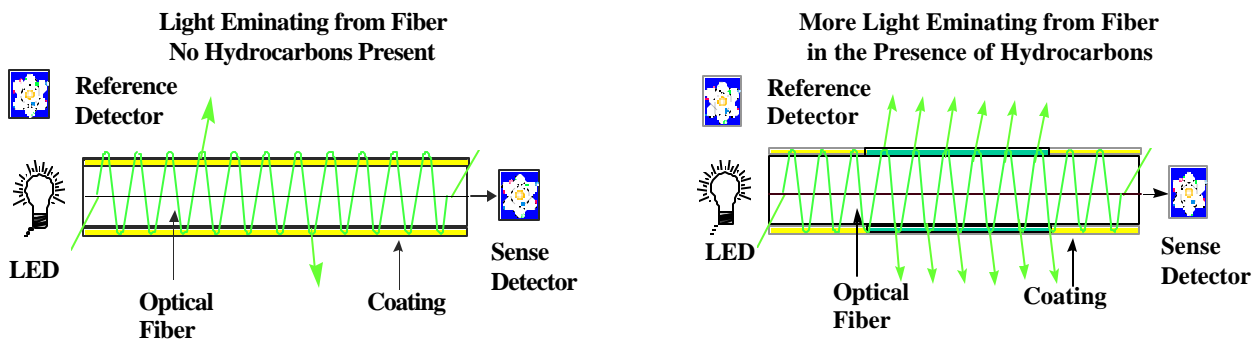
The PetroSense<sup>®</sup> product line will supply TPH measurements without the use of hydrochloric acid, freon, or any other solvents used for extraction.

The PetroSense<sup>®</sup> Technology is available in a hand-held version (PHA-100 series) or in continuous monitoring systems (CMS-4000, CMS-5000 or OilSense<sup>®</sup>-4000).

The PetroSense<sup>®</sup> products are available today, have proven track records in the field, and are competitively priced.

## How does the PETROSENSE<sup>®</sup> technology work?

The PetroSense<sup>®</sup> technology is based on the principle of a Fiber Optic Chemical Sensor (FOCS<sup>®</sup>). A light emitting diode (LED) sends light through the chemically coated strand of optical fiber depicted below. As the outside of the fiber comes in contact with hydrocarbons, some of the light travelling through the optical fiber escapes. A reference detector at one end and a sense detector (PD) at the other end of the fiber measure that loss of light. This change in the refractive index (loss of light) correlates very well to the concentration of hydrocarbons present.



## Operating Principle

### **What advantage does FOCS<sup>â</sup> have over UV (ultraviolet), IR (infrared) or Fluorescence?**

When using UV, IR or Fluorescence, each technology has limitations. UV and IR rely on the hydrocarbon's ability to adsorb a specific wavelength of light. Problems can arise when other contaminants in produced water may also adsorb at that same wavelength increasing your value of oil in water. This change in turbidity can have a pronounced effect on the accuracy of results.

Fluorescence can have the same limitations with a bit of a twist. Because specific filters have to be used for control of the specific wavelength before and after the sample cell, changes in production characteristics can lead to inaccurate results.

Fluorescence also has had problems with increases in turbidity similar to the UV and IR.

Also, the UV, IR, and Fluorescence technologies all require an extraction with freon or hexane before the hydrocarbon can be measured. This means handling and disposing of more chemicals for your operations.

Finally, in-line systems using these technologies can be cost prohibitive.

### **What can interfere with oil-in-water readings using the PetroSense<sup>â</sup> products?**

You should expect very little interference using the PetroSense<sup>®</sup> technology. Turbidity and typical produced water flocculants and coagulants used to clarify produced water should have no effect on the PetroSense<sup>®</sup> readings.

The key to success with your new PetroSense<sup>®</sup> monitoring equipment is to keep it well maintained and clean as discussed in the operation procedures.