



Beer-Lambert Law – All about the beer! Spectroscopic quality control

Craft breweries like to promote themselves as a better-tasting, better-quality beer than the alternative macrobrews. While taste is a subjective and hotly debated topic, beer quality is something that can easily be measured with spectrometers.

The Beer-Lambert Law, sometimes more aptly called Beer's Law, relates the amount of light absorbed in a sample with the properties of the sample. To perform an analysis you need a sensor, a spectrometer, and a light source, in this case a Heraeus FiberLight® D₂ miniature UV light source. Spectroscopic quality control testing provides a straightforward, low-cost method capable of rapid sample analysis. Incorporating a spectrometer in a brewery's quality control process can save time and money in a variety of ways. It is nondestructive, does not require complicated sample preparation, and it provides real time data.

Brewing is not like most manufacturing operations when it comes to dealing with defects. A problem in the brewing process can affect and spoil an entire batch which can be hundreds of gallons of beer (what a waste!). To prevent this, many brewers send samples to outside labs for analysis. However, this takes time, and if a problem is detected too late, it could mean a loss of beer and profits for the brewery.

The solution provided by StellarNet, Inc. is a compact spectrometer package. This simple to use platform allows for easier understanding and operation whilst not requiring doctorate level chemists to oversee its use. Once installed and the users are trained, the savings in the cost of quality quickly repay the investment in the system.

Heraeus designed the same easy-to-use philosophy into its FiberLight® D₂ product. Our light source is a complete plug-&-play design that is easy to incorporate into spectroscopic systems. This means the OEM spends less time and money on complicated optical designs, and gets the product to market quicker. Its small size is ideal for portable or table-top units and enables design flexibility. Its integrated control board and power supply eliminate the need for auxiliary electronics. Overall, FiberLight® D₂ lowers development and production costs to OEMs, whilst its fast and long life operation lowers cost-of-ownership to end users. And...we help keep beer tasting good!



Features

- Compact light source for mobile spectroscopy
- Complete system consisting of lamp module (deuterium and tungsten lamp in a shine-through arrangement or a line source), shutters and an
- SMA fibre-optic connector and low power consumption
- Instant lamp ignition, instant stability and cyclic operation

Technical Data

- Spectral distribution 200 – 1100 nm
- Power consumption 6 Watt and 10W versions
- Dimensions (L x W x H) 157 x 55 x 37 mm
- Optical fiber connector SMA 905
- Light output $\geq 5 \times 10^{-8}$ W/sr<, (radiant intensity) @240nm
- Stability $\leq 1 \times 10^{-30}$ AU, drift $\leq 0,25\%/h$
- Life ≥ 1000 h@240 nm (50% intensity loss)

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