RAW WATER COLOR

DRINKING WATER MONITORING IN THE NETHERLANDS

In the Netherlands, drinking water is produced by purifying groundwater pumped out of underground aquifers 40 to 200 meters deep. Once this water is brought to the surface it is aerated and then filtered to remove iron that taints its flavor and gives it a brownish hue.

In one purification plant, automatic titration units were used as control inputs to the filtration systems removing the iron to ensure the color of the filtered water was kept below 5 Platinum Cobalt (Pt/Co) color units. These titrators operated batch-wise – they extracted a water sample to test periodically – which meant that the measurement was not real time. In addition, they were very maintenance intensive and required reagents to be replenished regularly.

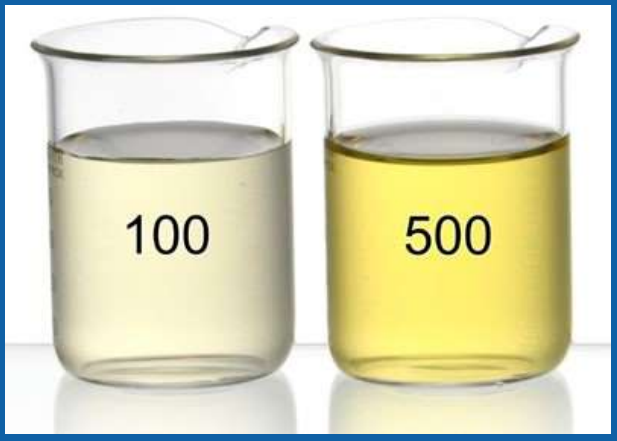
Kemtrak DCP007 inline photometers that measured in real time and required no maintenance were offered as an alternative to the titrators. A DCP007 was configured using an optical measurement cell with a 200mm long pathlength and a measurement wavelength of around 450nm. This ensured Pt/Co measurement to a precision of ±0.2 ppm at 5ppm Pt/Co. A second [NIR] wavelength was used to compensate the color measurement for both fouling of the optical windows and entrained turbidity.

A Kemtrak DCP007 photometer with a long pass flowcell installed for evaluation purposes

The analyzer was factory calibrated and only required zeroing before it could be used. Installation was simple and took about an hour in total. The DCP007 photometer was evaluated over a three-month period and found to be an excellent replacement for the titration units. The evaluator commented that the DCP007 is **"Very reliable for continuous measurement in an unmanned process where 100% up-time and availability is required and no maintenance is needed."**

Furthermore, they reported **"No drift over a period of months; a very stable reading."**

Final installation of a Kemtrak DCP007 photometer



Kemtrak DCP007's have since replaced all of the titration units throughout the plant to provide real time continuous measurement for filtration control with zero maintenance overhead.

THE KEMTRAK SOLUTION

The Kemtrak DCP007 is an industrial inline colorimeter designed to accurately measure the color of liquids. Real time measurement results are displayed in units of PCU (Pt/Co), Hazen or APHA.

The Kemtrak DCP007 uses a high performance long life LED light source with robust industrial fiber optics to provide a measurement with very high precision. A proprietary dual wavelength four channel measurement technology allows accurate measurement of both highly colored and trace color levels. A primary "measurement" wavelength accurately measures water color, while the second reference NIR wavelength, which is not influenced by the water color, compensates for turbidity and/or fouling of the optical windows.

Optical fibers are used to transport light to the measurement point and back. The measurement cell therefore contains no electronics or moving parts, making it ideal for installation in an outdoor setting and within hazardous areas.

Electronics are housed in a stainless steel NEMA 4X enclosure and can be installed in a convenient location up to 100m away from the measurement cell. Operation is through an intuitive, four-button and 4 line LCD screen. Both analog and digital outputs are included as standard and provide great flexibility for connection to a supervisory control system.

The analyzer contains a web served browser interface through an embedded ethernet port. It supports network and direct PC connection for user interaction when setting up, commissioning and servicing and provides an upload/download feature so that configuration can be saved and stored. A full range of diagnostics are available to confirm that the unit is operating correctly and to specification.

Standard measurement cells are manufactured from stainless steel to protect against corrosion and use sapphire windows to provide a long and maintenance free operation.

Calibration is simplified using an automated QuickCal one point calibration. Measurement drift from LED light or filter aging is negligible and once installed and commissioned, instrument recalibration is not required.

KEMTRAK COLORIMETERS PROVIDE:

- Drift Free Measurement
- Low Noise
- Automatic Fouling Correction
- Accurate Color Reporting
- Low Maintenance

GET IN TOUCH

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