

### APPLICATION NOTE

#### No. 7.02 WATER & ENVIRONMENT

## CHLORINE DIOXIDE (ClO<sub>2</sub>)

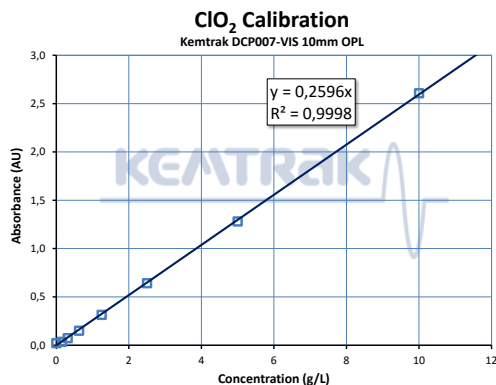
- 1 ppm – 20 g/L
- Direct measurement of chlorine dioxide concentration in process line
- Measure the effectiveness of disinfection (residual chlorine dioxide)
- Optimize reactor performance

Chlorine dioxide is a potent and useful oxidizing agent commonly used for the disinfection (called chlorination) of municipal drinking water.

Chlorine dioxide has a strong UV absorption from 350nm up to 500nm with an absorption maximum at 360nm.

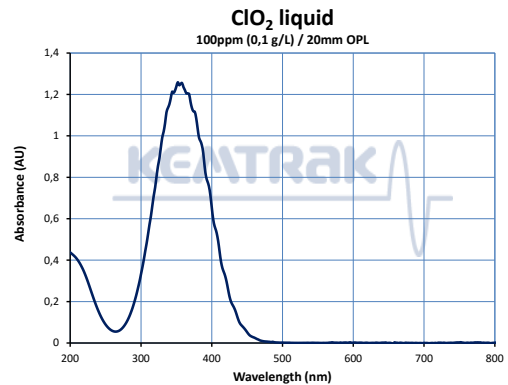
### APPLICATION

High concentration chlorine dioxide is measured with a Kemtrak DCP007 VIS photometer. A high performance long life LED light source is utilized which has a zero maintenance requirement.



Initial calibration is simplified using an automated QuickCal one point calibration. Measurement drift from lamp aging is eliminated and instrument recalibration is not required.

Trace chlorine dioxide measurement at 1 ppm resolution is possible using a wavelength of 360nm using a Kemtrak DCP007 VIS photometer.



### INSTALLATION

A Kemtrak DCP007 VIS photometer is suitable for measurement down to 360nm however UV fiber optic cables are required below 400nm operation. A reference wavelength of 660nm is used to compensate for turbidity and window fouling.

Measurement cells for this application vary depending upon the sample concentration and installation conditions. High concentrations (> 1 g/L) use DIN DN25 or ANSI 1" measurement cells.

Titanium Gr 2 is used for applications where concentration is greater than 5 g/L or when pressure is greater than 10bar (145 psi). PTFE 25%C is also commonly used while stainless steel is suitable where trace concentrations are measured.

Water is required to zero the analyzer. When measuring trace chlorine dioxide in drinking water the color of the drinking water should not be too high as it may interfere with the measurement (see application note 7.01 Water Color).



Kemtrak DCP007 process photometer (1) with DIN DN25 measurement cell (2) and fiber optic cable (3)



*Kemtrak DCP007 process photometer ClO<sub>2</sub> installation*