

APPLICATION NOTE

7.02 WATER & ENVIRONMENT

CHLORINE DIOXIDE (ClO₂)

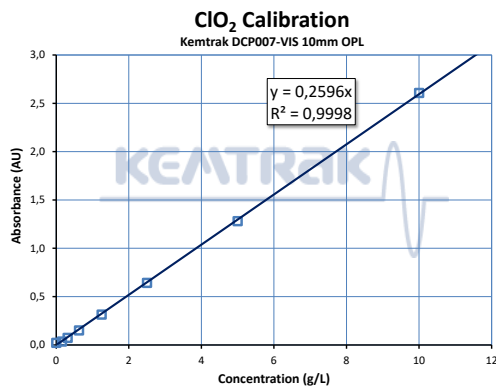
- Measurement range: 1 ppm – 20 g/L
- Direct measurement of chlorine dioxide concentration in process line
- Measure the effectiveness of disinfection (residual chlorine dioxide)
- Optimize reactor performance

Chlorine dioxide is a powerful and effective oxidizing agent widely utilized for the disinfection, known as chlorination, of municipal drinking water.

It exhibits strong UV absorption between 350 nm and 500 nm, with a peak absorption at 360 nm.

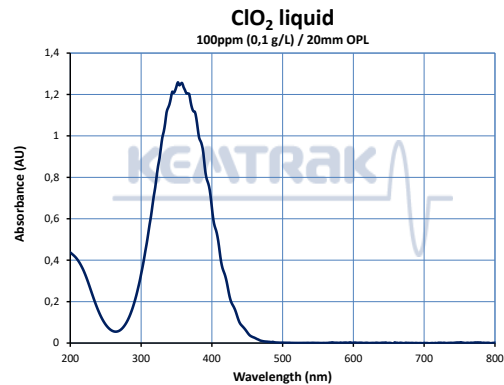
APPLICATION

High concentrations of chlorine dioxide are measured using a Kemtrak DCP007 VIS photometer, which features a high-performance, long-life LED light source that requires no maintenance.



Initial calibration is simplified using an automated QuickCal one-point calibration. This setup eliminates measurement drift due to lamp aging, making instrument recalibration unnecessary.

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



INSTALLATION

The Kemtrak chlorine dioxide analyzer is suitable for measurements down to 360 nm, though UV fiber optic cables are necessary for operation below 400 nm. A reference wavelength of 660 nm is employed to compensate for turbidity and window fouling.

Measurement cells for this application vary based on sample concentration and installation conditions. For high concentrations (>1 g/L), DIN DN25 or ANSI 1" measurement cells are used. Titanium Gr 2 is utilized for concentrations exceeding 5 g/L or when pressure exceeds 10 bar (145 psi). While PTFE 25% is commonly used, stainless steel is more appropriate for measuring trace concentrations.

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



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



Kemtrak chlorine dioxide analyzer installation