APPLICATION NOTE

No. 5.02 PULP & PAPER

CHLORINE DIOXIDE (GAS)

- Down to 1ppm (2.3 mg.Nm^{-3}) chlorine dioxide in the gas phase
- Real time continuous measurement
- Optimize generator & gas scrubber performance
- Emission monitoring to ensure environmental regulations are met

Chlorine dioxide (ClO_2) is used primarily as a bleaching agent in the pulp and paper industry for elemental chlorine free (ECF) bleaching.

Chlorine dioxide has a strong UV absorption and can be accurately and continuously measured in all liquid and gas streams.

APPLICATION

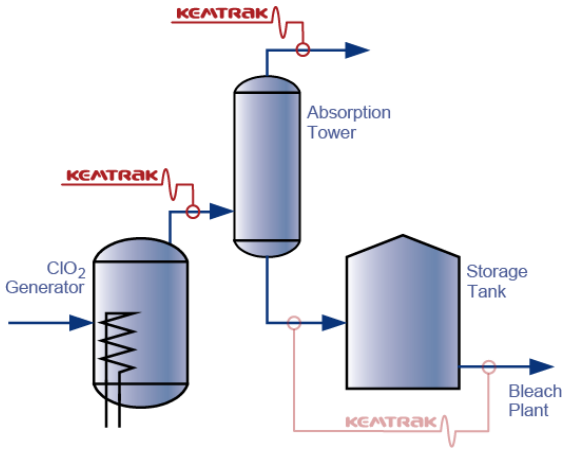
The Kemtrak DCP007 is a state of the art process photometer designed to accurately measure the concentration of chlorine dioxide gas.

The Kemtrak DCP007 process photometer utilizes new high performance LED light source technology which provides numerous benefits over traditional incandescent lamps. The optical output of a LED light source is very stable and consistent over time which eliminates drift and removes the need for recalibration. Optic fibers are used to transfer cold light to the measurement point and back, the measurement cell contains no electronics, moving parts or sources of heat that result in condensation on the optical surfaces.

NIST-traceable validation filters are available to verify analyzer performance without process interruption.

INSTALLATION

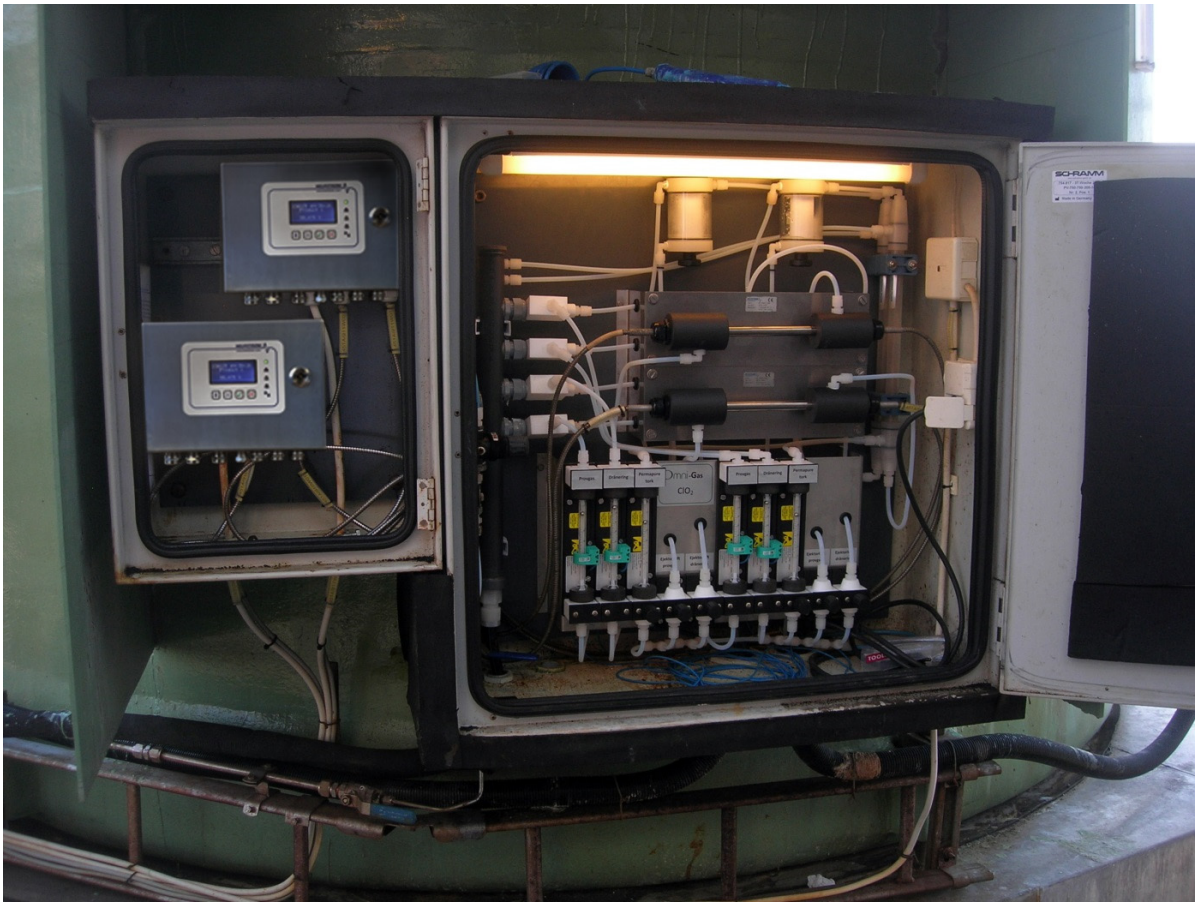
A Kemtrak DCP007 photometer is suitable for measurement down to 360nm however UV fiber optic cables are required below 400nm operation.



Due to the aggressive nature of chlorine dioxide, all wetted parts are manufactured from corrosion resistant materials, such as titanium Gr 2, PTFE and sapphire. The recommended measurement cell for low level chlorine dioxide detection is a hybrid long optical path (200 mm) PTFE 25%C – Hastelloy Gr 2 installed with a gas sampling system to dry the saturated process gas before analysis.

Chlorine dioxide gas is corrosive and sticky with a high humidity after the gas scrubber. It is recommended to sample the ClO_2 gas at the outlet (furthest away from the gas scrubber) and over a fan to generate a pressure drop to ensure a flow through the measurement cell. A cabinet heater is recommended to be used where ambient temperatures fall below 15°C (59°F).

For liquid measurement applications, please refer to application note 5.01 Chlorine Dioxide (liquid).



Kemtrak DCP007 process photometer with 200mm optical path length PTFE 25%C - titanium measurement cell and extractive gas sampling system installed at the outlet