

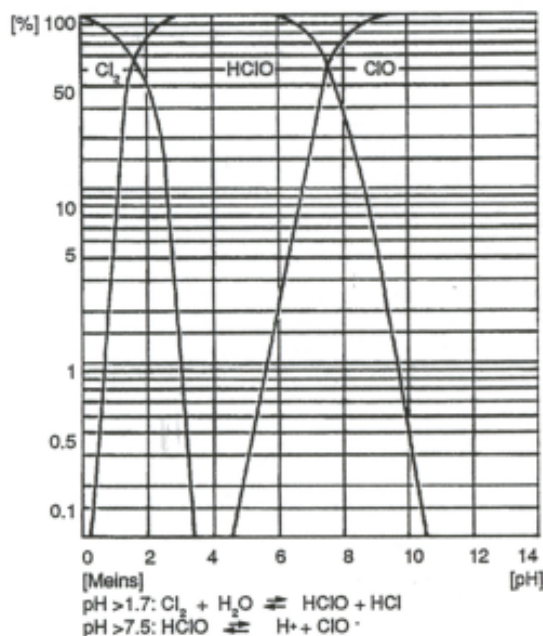
General

For the disinfection of any type of wasted water, preference is given to chlorine gas or chlorine compounds. In order to monitor the disinfection process, a measuring cell has been developed which is working according to the principle of depolarization of a galvanic element.

The measuring cell contains a platinum and a copper electrode. With the sample water acting as the electrolyte, galvanic potential develops between the two electrodes, depending on the electrode material. If the sample water was not moving, the electrodes would polarize and the current flow would gradually be interrupted due to insulation caused by hydrogen ions (gas). Glass balls inside the cell rotate as they are actuated by the continuous sample water flow, and thus remove the hydrogen gas layer from the electrodes. Starting from this constant basic condition, the cell current increases in proportion to the free chlorine surplus. The current is analyzed by connected amplifiers.

The disinfecting efficiency of chlorine strongly depends on the pH value. This is shown in the following dissociation diagram. Consequently, a constant pH value is required for the sample water. Otherwise, the same chlorine content would give different readings.

Diagram



Note:

Apart from chlorine, the other halogens, such as bromine, fluorine and iodine can be analyzed. The measurement can also be carried out in sea-water or salt water. The sample should, however, be free of grease, if possible, or cleaned through a 50 mm filter. Protect the measuring cell against intense light, especially direct sunlight.

Principle	Depolarization measuring cell w/ rotating glass balls
Electrodes:	Platinum/Copper combination
Measuring range:	0...0.5 mg/l Cl ₂ to 0...20 mg/l Cl ₂ (adjustment of the measuring range only via amplifier input)
pH value:	Must be constant within the range pH 3...6 to measure total chlorine content. For pH values > 6, a portion of chlorine is measured which forms HClO according to the dissociation curve.
Sample water volume:	approx. 50 l/h at 100 mbar pressure drop through the cell
Operating pressure:	max. 10 bar
Pressure dependence:	0.1 % / bar
Temp. dependence:	1 % / °C
Current output with chlorine-free water:	approx. 15 µA
Cell constant:	approx. 35 µA / 1 mg/l Cl ₂
Housing material:	Acrylic glas (PMMA)
Weight:	approx. 0.2 kg
Rec. amplifier input resistance:	500W..5KW (adjustable)

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