



Iotronic Elektrogerätebau GmbH
Fillerkampsweg 1-5

31832 Springe

Dear Ladies and Gentlemen,

we operated the process titrator Aquacon CLO2 (serial number: 020784) for chlorine dioxide measurement in aqueous solutions in our institute. We measured chlorine dioxide concentrations between 0.03 mg/l and 0.86 mg/l photometrically according to DIN EN 12671 (measurement of the increase of absorption at 548 nm with 1,5-bis(4-methylphenylamino-2-potassiumsulfonate)-9,10-antrachinone) and simultaneously with the Aquacon CLO2 titrator. The standard solutions of chlorine dioxide were determined by iodometric titration according to DIN EN 12671 and set as 100 percent values. A series of series of 11 measurements with each 3 different levels of concentration of chlorine dioxide were conducted. Each concentration was measured three times to ensure reproducibility (99 single measurements). The results were the following:

Average standard deviation (measurements according to DIN EN 12671): 0.0106 ppm

Average standard deviation (measurements with Aquacon CLO2): 0.0099 ppm

Average relative deviation (measurement with Aquacon and comparison with iodometric titration, measuring range 0.1 – 0.3 mg/l chlorine dioxide) 6.18 %

Average deviation (measurement results of Aquacon CLO2 fitted with a polynomial function and comparison with iodometric titration, measuring range 0.03 – 0.86 mg/l chlorine dioxide) 0.022 mg/l

In addition, 8 series of measurements with the Aquacon CLO2 were conducted by personal who received only limited instructions on how to operate the Aquacon. These measurements showed that the average standard deviation was 0.0079 mg/l. The process titrator Aquacon CLO2 (serial number: 020784) operated free of errors and functional interruptions and was very accurate as the attached results show.

On the basis of the measured values can be stated that the measurement method of the company iotronic is suitable as automated procedure for the measurement of chlorine dioxide.

The deviations between the results of the Aquacon CLO2 and the results according to DIN EN 12671 were small and systematically and could be minimized by fitting with a simple polynomic function. For the measurement range of 0.1-0.3 mg/l chlorine dioxide (important range for drinking water), the measurements with the Aquacon CLO2 had a smaller average relative deviation than the measurements according to DIN EN 12671. For the measurement range of 0.03-0.86 mg/l chlorine dioxide, the average deviation of the measurement results of Aquacon CLO2 fitted with a polynomic function in comparison to iodometric titration was 0.022 mg/l (2.56 % of end value).



Hannover, 10.07.03

(Priv.-Doz. Dr. Roland Ulber)