

ClO₂ Measuring Methods Overview

Most tests for chlorine dioxide rely upon its oxidizing properties. Consequently, numerous test kits are readily available that can be adapted to measure chlorine dioxide. In addition, new methods that are specific for chlorine dioxide are being developed. The following are the common analytical methods for chlorine dioxide:

Chlorine Dioxide Methods

	DPD glycine	Chlorophenol Red	Direct Absorbance	Iodometric Titration	Amperometric Titration
Method Type:	Colorimetric	Colorimetric	Colorimetric	Titrametric	Titrametric
How It Works	Glycine removes Cl ₂ ; ClO ₂ forms a pink color, whose intensity is proportional to the ClO ₂ concentration.	ClO ₂ bleaches chlorophenol red indicator. The degree of bleaching is proportional to the concentration of ClO ₂ .	The direct measurement of ClO ₂ is determined between 350 and 450 nM.	Two aliquots are taken one is sparged with N ₂ to remove ClO ₂ . KI is added to the other sample at pH7 and titrated to a colorless endpoint. The pH is lower to 2, the color allowed to reform and the titration continued. These titrations are repeated on the sparged sample.	
Range	0.5 to 5.0 ppm.	0.1 to 1.0 ppm	100 to 1000 ppm	> 1 ppm	< 1ppm
Interferences	Oxidizers	None	Color, turbidity	Oxidizers	
Complexity	Simple	Moderate	Simple	Moderate	High
Equipment Required	Spectrophotometer or Colorimeter			Titration equipment	Amperometric Titrator
EPA Status	Approved	Not approved	Not approved	Not approved	Approved
Recommendation	Marginal	Yes	Marginal	Yes	Marginal

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