Method Abstract

Scope

This method is used for the determination of chloride in drinking water, surface water, and domestic and industrial waste according to Standard Methods 4500–Cl^- E. Additionally, this method enables chloride analysis according to ISO Method 15682.

Summary

Chloride reacts with mercuric thiocyanate, liberating thiocyanate ion by the formulation of soluble mercuric chloride. In the presence of ferric ion, free thiocyanate ion forms a highly colored ferric thiocyanate complex. The colored complex is measured at 480 nm.

Interferences

There are no significant chemical interferences for this method. Filter turbid samples prior to analysis.

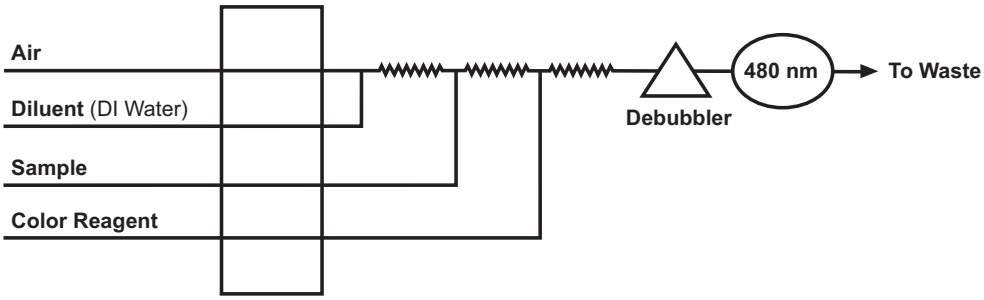
Performance Specifications

Range:	1.0–200 mg/L
Throughput:	60 samples/hour
Precision (at 10 mg/L):	<1% RSD
Precision (at 100 mg/L):	<0.5% RSD
Method Detection Limit (MDL):	0.12 mg/L
Accuracy:	98.87%

Chemicals

Brij®-35, 21% solution	Methanol, CH_3OH
Deionized (DI) Water (ASTM Type I or II)	Nitric Acid, concentrated, HNO_3
Ferric Nitrate Nonahydrate, $Fe(NO_3)_3 \cdot 9H_2O$	Sodium Chloride, NaCl
Mercuric Thiocyanate, $Hg(SCN)_2$	Thioacetamide, C_2H_5NS

Basic Flow Diagram

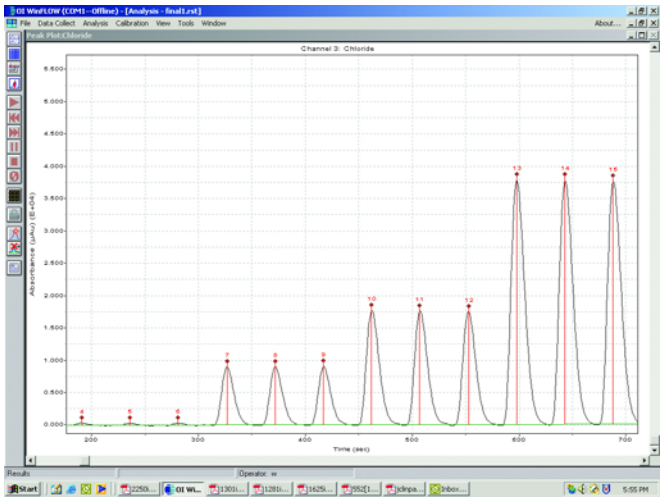


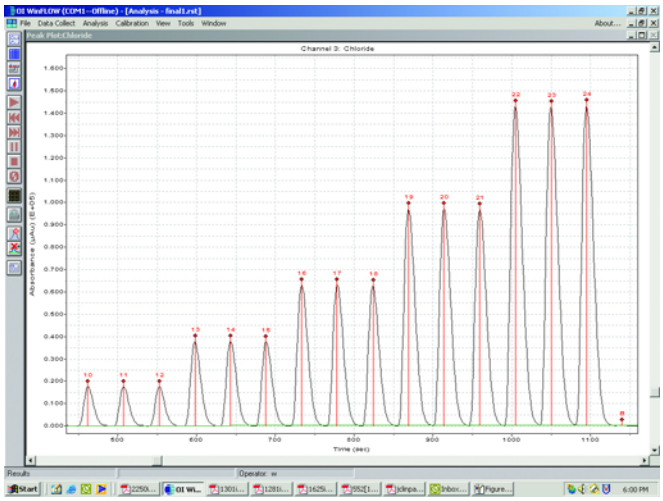
Selected Reference

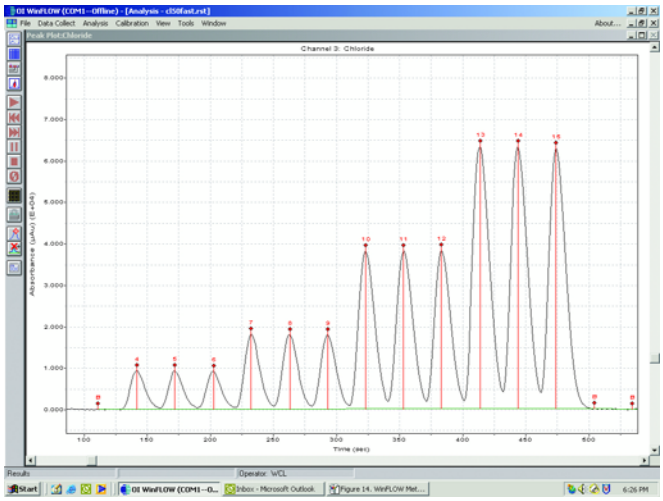
Methods for Chemical Analysis of Water and Wastes; EPA-600/4-79/020; U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory: Cincinnati, OH, 1984; Method 325.2.

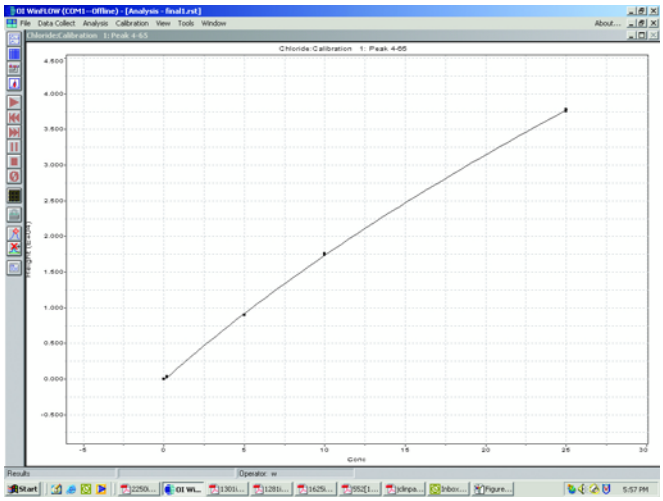
Water Quality–Determination of Chloride by Flow Analysis (CFA and FIA) and Photometric or Potentiometric Detection. *International Standard*; ISO Method 15682:2000 (E); 1st ed.; American Public Health Association: Washington, D.C., 2005.

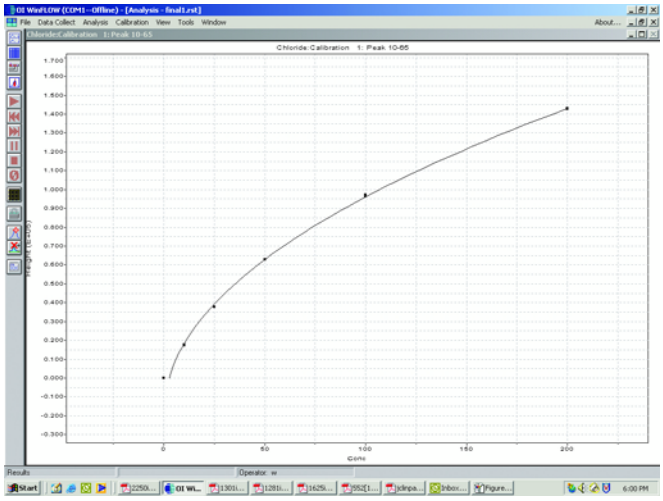
Figures






Channel 3: Chloride


Chloride:Calibration 1: Peak 4-65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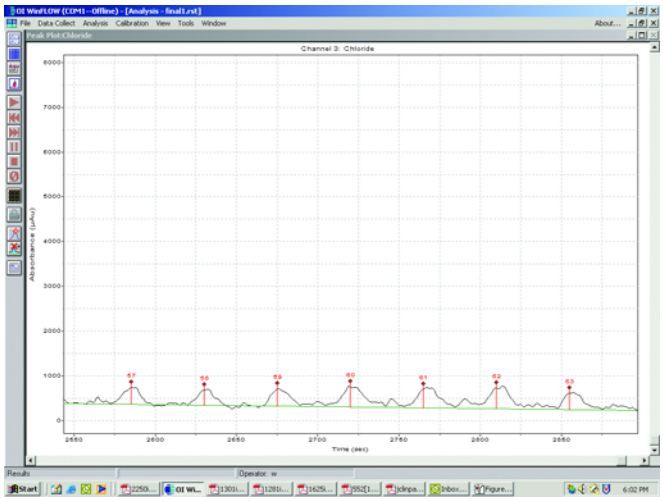
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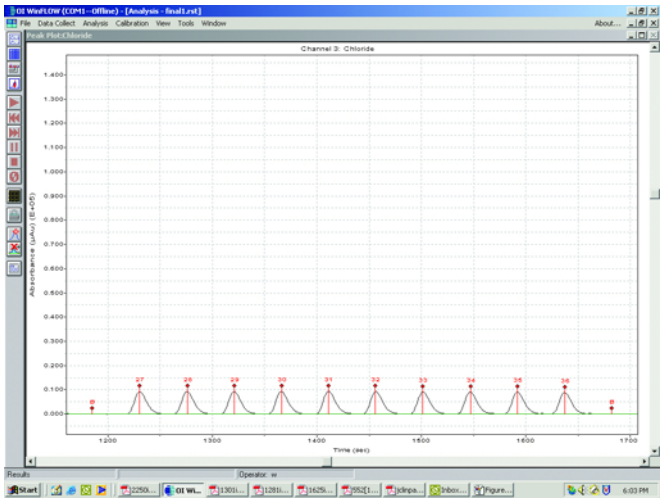
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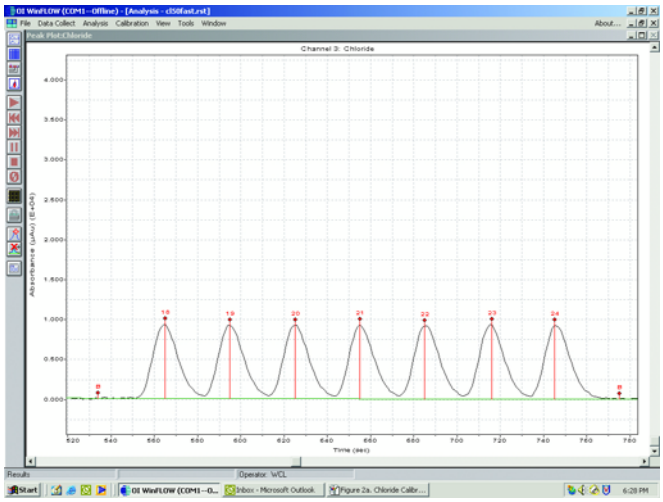
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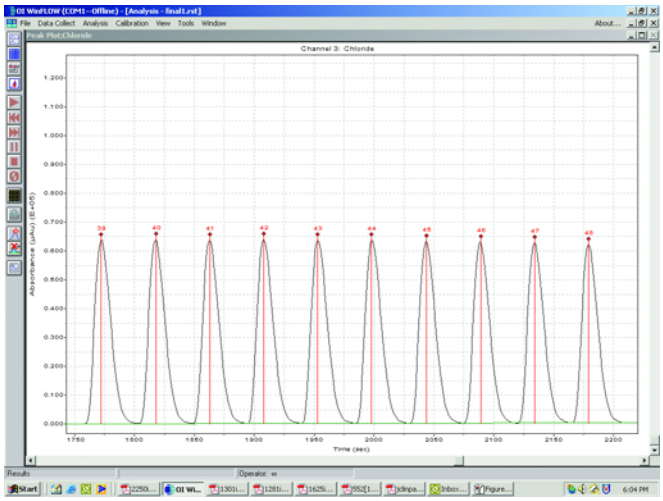
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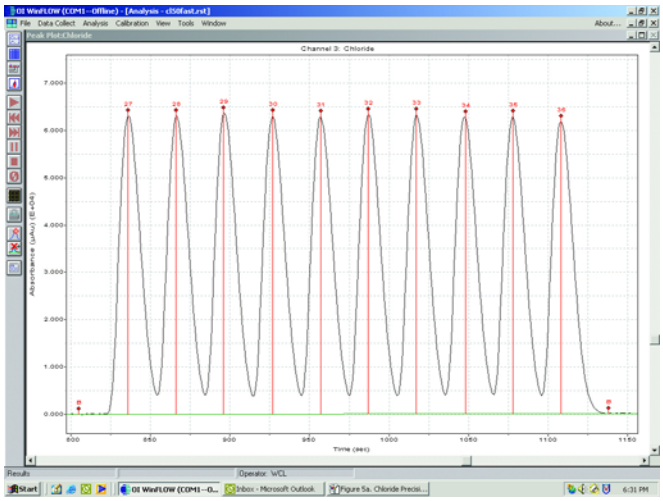
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Time (sec)