

Chloride

FIALab standard method for Chloride Assay using the FIALab-2500/2600/2700 system.

Assay	Typical Throughput	Concentration Range	Notes
Chloride (Mid)	120 samples/hour	1 to 50 mg Cl-/L	1 cm flow cell
Chloride (Low)	60 samples/hour	0.1 to 5 mg Cl-/L	10 cm flow cell

Principle:

The chloride assay is based on the liberation of the thiocyanate ion (SCN) from mercuric thiocyanate, through sequestration of mercury by the chloride ion, to form un-ionized, but soluble mercuric chloride. The liberated SCN then reacts with the ferric ion to form highly colored ferric thiocyanate.

Comments:

A heater is not necessary. The flow rate of the pump should be set to 55 for Chloride. The FIA LOV connections B should be bridged by a simple tubing. Recommended wavelengths 480 nm primary and 650 nm reference. The sample loop should be three inches of .03” ID tubing.

Interferences:

Components which reduce iron (III) to iron (II) and mercury (III) to mercury (II), e.g. sulfite, thiosulfate.

Reagents:

Carrier: DI Water

1-Liter DI Water. Matrix matching is recommended, especially for low concentration samples.

Reagent 1: Mix equal parts (15 ml each) of Mercuric Thiocyanate Stock solution (Component A) and Ferric Nitrate Stock Solution (Component B) diluted to 100ml with reagent water.

Component A: Mercuric Thiocyanate Stock solution: Mercuric Thiocyanate in Methanol.

Component B: Ferric Nitrate Stock Solution: Ferric Nitrate in Nitric Acid diluted with reagent water.

Note: If bubbles become an issue, sticking in the flow cell and other parts of the manifold, then add 1-gram Brij-35 (detergent) per liter to Reagent 1.

Reagent 2: Not used

Plug R2 port with Teflon Plug

Standards:

100ml ICCHL-100 (Chloride standard)

Source: 727-524-7732 – www.exaxol.com