

Mercuric Nitrate Method

Method 10073

0–100 ppt¹ Salinity

Digital Titrator

Scope and Application: For seawater and brackish water

¹ parts per thousand (ppt)



Test preparation

Before starting the test:

ppt salinity x 569 = mg/L chloride (Cl⁻).

ppt salinity x 940 = mg/L sodium chloride (NaCl)

Use the TitraStir apparatus for best results

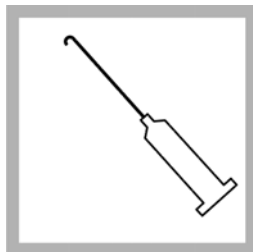
Both the sample and the blank will contain mercury (D009) at a concentration regulated as a hazardous waste by the Federal RCRA. Do not pour these solutions down the drain. Refer to the MSDS for more information on proper disposal of these materials.

Collect the following items:

Description	Quantity
Diphenylcarbazone Reagent Powder Pillows	1
Deionized Water	varies
Digital Titrator	1
Mercuric Nitrate Titration Cartridge, 2.570 N	varies
Syringe, 3-cc, Luer lock tip	1
Vial with 2-, 5-, 10-, 15-, 20- and 25-mL marks	1

See [Consumables and replacement items](#) for reorder information.

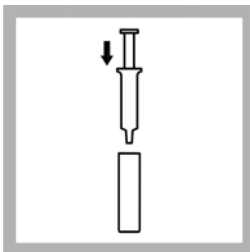
Iodate-Iodide Method



1. Insert a clean delivery tube into the Mercuric Nitrate Titration Cartridge. Attach the cartridge to the titrator body.

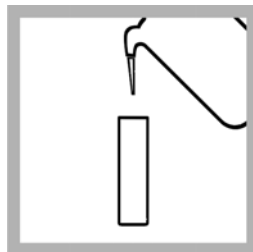


2. Turn the delivery knob to eject a few drops of titrant. Reset the counter to zero and wipe the tip.

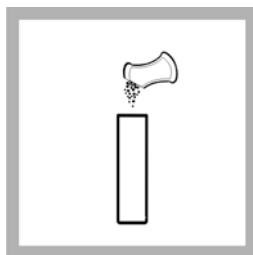


3. Use the 3-mL syringe to collect a 2.0-mL water sample. Add to the vial, provided.

Note: 2 mL = 2 cc

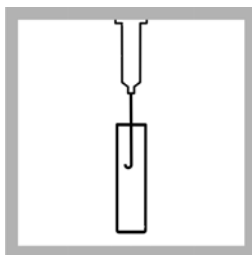


4. Fill the vial to the 10-mL mark with deionized water.



5. Add the contents of one Diphenylcarbazone Reagent Powder Pillow to the vial and mix.

A small amount of undissolved reagent will not affect results.



6. Titrate the sample with mercuric nitrate until the color changes from yellow to light pink.

Record the number of digits.



7. Calculate sample salinity in parts per thousand:

Digits Required x 0.1 = ppt Salinity

Summary of method

The mercuric nitrate method of chloride analysis has become popular due to the sharp yellow to pinkish-purple end point of diphenylcarbazone. A single, stable powder has been developed, combining the color indicator with an appropriate buffer to establish the correct pH.

Consumables and replacement items

Required reagents

Description	Unit	Catalog number
Diphenylcarbazone Reagent Powder Pillows	100/pkg	96799
Mercuric Nitrate Titration Cartridge, 2.570 N	each	2393701
Water, Deionized	4 L	27256
Chloride Standard, 12,500 mg/L as Cl ⁻ , (22 ppt Salinity) 10 mL AMP	16/pkg	1425010
Sodium Chloride standard, 10,246 mg/L as NaCl, 100 mL AMP	10.9 ppt salinity	2307442

Required apparatus

Description	Unit	Catalog number
Delivery tubes w/ 180 ° hook	each	1720500
Delivery tubes w/ 90° hook	each	4157800
Digital Titrator ²	each	1690001
Syringe, 3-cc, Luer lock tip	each	4321300
Vial with 2-, 5-, 10-, 15-, 20- and 25-mL marks	each	219300
Voluette breaker	each	2196800



FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:

In the U.S.A. – Call toll-free 800-227-4224

Outside the U.S.A. – Contact the HACH office or distributor serving you.

On the Worldwide Web – www.hach.com; E-mail – techhelp@hach.com

HACH COMPANY
WORLD HEADQUARTERS
Telephone: (970) 669-3050
FAX: (970) 669-2932