CHLORIDE

Tablet Count Method

TEST FOR CHLORIDE IN NATURAL AND TREATED WATERS

0 – 50 mg/l Cl to
0 – 25,000 mg/l Cl

The Palintest Chloride method provides a simple test for measuring chloride salt levels. There are many applications in water technology that require determination of chlorides. These include the measurement of low levels of chloride to determine the extent of carry-over in boiler condensates; chloride determination to assess salt build-up in swimming pool or boiler waters; and measurement of high chloride levels for testing sea water or determining the saltiness of brackish waters. A further application is for checking swimming pools where salt has been artificially added to simulate sea water bathing, or where this is necessary for the operation of certain types of electrolytic hypochlorite generator.

The test can be used for measuring these widely different chloride concentrations by varying the sample size selected. The results of the tests are expressed in terms of chloride ion (Cl^-), but may be converted to concentrations in terms of sodium chloride (NaCl) by applying a factor.

Method

Chlorides react with silver nitrate to produce insoluble silver chloride, excess silver ions react with potassium chromate to produce a red-brown coloration. The Palintest chloride test uses a tablet reagent containing a standardised amount of silver nitrate and potassium chromate as indicator. The test is carried out by adding tablets one at a time to a sample of water until the colour changes from yellow to brown. The result is calculated from the number of tablets used in relation to the volume of the water sample taken.

Reagents and Equipment

Palintest Chloride Tablets
Palintest Sample Container, 50/10 ml plastic (PT 506, PT 519) or
Palintest Sample Container, 100/50/10 ml plastic (PT 510) or
Palintest Sample Container, 200/100/50 ml glass (PT 505)
Palintest Measuring Syringe, 2 ml (PT 362)

The latter item of equipment is optional and is only required for high range tests where small sample sizes are to be taken.

Test Ranges

The table below indicates the test range and sample size appropriate to various practical applications for chloride testing :-

Test Range	*Sample Size*	*Application*
0 – 50 mg/l Cl	200 ml	Boiler Condensate
0 – 250 mg/l Cl	50 ml	Natural Water, Drinking Water
0 – 1000 mg/l Cl	10 ml	Swimming Pool Water, Boiler Water
0 – 5000 mg/l Cl	2 ml	Swimming Pool Water (with salt artificially added)
0 – 25,000 mg/l Cl	0.5 ml	Sea Water, Brackish Water

Test Prodedure

1 Select the sample size appropriate to the test application using the above table. Take a sample of the appropriate size in the Palintest sample container.

2 For small sample sizes use the measuring tube or dropping pipette and transfer the sample to the Palintest sample container. Make up the volume to approximately 10 ml using distilled water.

3 Add one Chloride tablet and shake the container until the tablet disintegrates.

4 Continue adding tablets one at a time in this manner until the colour of the solution changes from yellow to brown.

5 Note the number of tablets used and calculate the result from the formula below appropriate to the sample volume originally taken :-

Sample Size	Calculation - Chloride (mg/l Cl)
200 ml	= (No of tablets - 1) x 5
50 ml	= (No of tablets - 1) x 20
10 ml	= (No of tablets - 1) x 100
2 ml	= (No of tablets - 1) x 500
0.5 ml	= (No of tablets - 1) x 2000

To convert Chloride ion (Cl^-) to Sodium Chloride (NaCl) - multiply result by 1.64.

Note

When testing sea water or other strong chloride solutions it may be more convenient to express concentrations as parts per thousand or as a percentage.

To convert milligrams per litre (mg/l) to parts per thousand (ppt) - divide result by 1,000.

To convert milligrams per litre (mg/l) to percentage concentration (%) - divide result by 10,000.