

Photometer Method

MANGANESE HR

Auto Wavelength Selection

TEST FOR SOLUBLE MANGANESE IN WATER

0 – 5 mg/L

Manganese-containing minerals occur widely and manganese salts are commonly found in many natural waters. Manganese is an objectionable constituent in water used for domestic purposes or industrial applications. In domestic situations, manganese will cause brown or black staining to laundry or plumbing fittings even at very low concentrations. In process applications such as paper manufacturing or textile finishing similar staining can occur. Manganese salts may impart an astringent taste to drinking water supplies, and in swimming pool applications can give an aesthetically displeasing brown coloration to the water.

In most cases where manganese salts occur naturally in the water, it will be necessary to apply special methods of removal before the water can be used for domestic or industrial purposes. The Palintest Manganese test provides an extremely sensitive method of measuring low concentrations of manganese for the assessment of natural waters and the control of manganese removal plant. The test measures total manganese over the range 0 - 5 mg/l.

Method

Manganese may occur in water in various different valency states. This method offered is the Formaldoxime Method, with a range of 0 - 5.0 mg/l Mn. In alkaline solution manganese reacts with formaldoxime to form an orange-red complex. The color developed is proportional to the manganese concentration. Iron II ions also form a coloured complex, which will interfere.

The intensity of colour produced in the test is proportional to the total manganese concentration and is measured using a Palintest Photometer.

Reagents and Equipment

Palintest Manganese HR No 1 Tablets

Palintest Manganese HR No 2 Tablets

Palintest Automatic Wavelength Selection Photometer

Round Test Tubes, 10 mL glass (PT 595/5)

Sample Collection

Manganese is readily absorbed onto the surfaces of sample containers. To avoid loss of manganese test sample as soon as possible after collection.

It is important, because of the extreme sensitivity of this test, to ensure that glassware used for the sample collection and test procedure is scrupulously clean. For most accurate results in laboratory use it is recommended that all glassware is acid-rinsed and then thoroughly washed out with deionised water before use.

Interferences

- 1 Iron (II) and Iron (III) will interfere with the test and cause false positive results. Even low levels of Iron (0.1mg/L) will interfere.
- 2 Copper will interfere and cause false positive results, this is characterised by the formation of a blue solution during the test.

Test Procedure

- 1 Fill test tube with sample to the 10 ml mark
 - 2 Add one Manganese HR No 1 tablet, crush and mix to dissolve.
 - 3 Add one Manganese HR No 2 tablet, crush and mix to dissolve then cap the tube.
 - 4 Stand for 5 minutes to allow colour development
 - 5 Select Phot 113 on the Photometer.
 - 6 Take Photometer reading in usual manner (see Photometer instructions).
 - 7 The photometer will display the reading as mg/L Mn reading.
-