Palintest
Water Analysis Technologies

NICKEL (NICKELTEST)

Photometer Method

AUTOMATIC WAVELENGTH SELECTION

0 – 10 mg/L

TEST FOR NICKEL IN NATURAL AND TREATED WATER

Nickel does not occur naturally in water but is found in many industrial waste waters, such as those from the steel and plating industries. It is considered an undesirable constituent of water, and hence requires close and careful monitoring. The EU maximum admissible concentration for drinking water (MAC) is 0.02 mg/L (EFSA 2015)

The Palintest Nickeltest method provides a simple test for the determination of nickel in water over the range 0 - 10 mg/L Ni. The test responds to both Ni^{2+} and Ni^{4+} and thus gives a measure of total soluble inorganic nickel content of the water.

Method

In the Palintest Nickeltest method, nickel salts are reduced to the nickelous form and then reacted with nioxime indicator to give a pink coloured complex. Reagents are included to prevent copper interference, and a complexing powder is provided to prevent iron interference.

The reagents are provided in tablet form and the test is simply carried out by adding tablets to a sample of the water. The intensity of colour produced in the test is proportional to the nickel concentration and is measured using a Palintest Photometer.

Reagents and Equipment

Palintest Nickeltest PR Powder (Spoon Pack)
Palintest Nickeltest No 1 Tablets
Palintest Nickeltest No 2 Tablets
Palintest Automatic Wavelength Selection Photometer
Round Test Tubes, 10 mL glass (PT 595)

Test Procedure

1 Fill test tube with sample to the 10 mL mark.

2 Add one Nickeltest No 1 tablet, crush and mix to dissolve. Ensure tablet is completely dissolved before proceeding.

3 If iron is thought to be present in the sample, add one level spoonful of Nickeltest PR powder and mix.

4 Add one Nickeltest No 2 tablet, crush and mix to dissolve.

5 Stand for two minutes to allow full colour development.

6 Select Phot 53 on Photometer.

7 Take photometer reading in usual manner (see Photometer instructions).

8 The result is displayed as mg/L Ni.

Interferences

1 The presence of cobalt at 0.5 mg/L gives a positive response in the test.

2 The presence of significant levels of EDTA (at least 25 mg/L) complexes nickel and reduces response in the test. Complexing agents used in water treatment, such as polyphosphates, do not affect the results.