

FLUORIDE

TEST FOR FLUORIDE IN NATURAL AND TREATED WATERS

Photometer Method

AUTOMATIC WAVELENGTH SELECTION

0 – 1.5 mg/l

Fluoride occurs naturally in some ground waters and is often introduced into drinking water for the prevention of tooth decay. Excessive amounts of fluoride are however objectionable and can cause tooth discolouration.

The Palintest Fluoride test provides a simple method of monitoring fluorides in natural waters, and for the control of fluoridation plant at water works.

Method

Zirconyl Chloride and Eriochrome Cyanine R are reacted in acid solution to form a red coloured complex. This colour is destroyed by fluoride ions to give the pale yellow colour of the Eriochrome Cyanine. Differing amounts of fluoride thus produce a range of colours from red to yellow.

The particular advantage of this method is that it is substantially free from interferences which normally beset chemical methods of fluoride testing. In particular interference from aluminium and iron is eliminated by making the solution alkaline in the first stage of the test procedure. This breaks down any aluminium-fluoride and iron-fluoride complexes which may be present in the water. Interference from calcium should not be significant at the levels normally encountered in natural and drinking waters.

In the Palintest Fluoride test two tablet reagents are used. The test is simply carried out by adding one of each tablet to a sample of the water. The colour produced in the test is indicative of the fluoride concentration and is measured using a Palintest Photometer.

Reagents and Equipment

Palintest Fluoride No 1 Tablets

Palintest Fluoride No 2 Tablets

Palintest Automatic Wavelength Selection Photometer

Round Test Tubes, 10 ml glass (PT 595)

PM 179, AP 179 AUTO

Test Procedure

- 1 Fill test tube with sample to the 10 ml mark.
- 2 Add one Fluoride No 1 tablet, crush and mix to dissolve.
- 3 Add one Fluoride No 2 tablet, crush and mix to dissolve.
- 4 Stand for five minutes to allow full colour development.
- 5 Select Phot 14 on Photometer.
- 6 Take Photometer reading in usual manner (see Photometer instructions).
- 7 The result is displayed as mg/l F.