

## CHROMIUM (CHROMICOL)

**TEST FOR HEXAVALENT CHROMIUM  
IN NATURAL AND INDUSTRIAL  
WASTE WATER**

**Photometer Method**

**AUTOMATIC  
WAVELENGTH  
SELECTION**

**0 – 1.0 mg/L**

Chromium may be present in certain industrial waste waters, such as those from the tanning, plating and coating industries. Chromium may occur in hexavalent form as chromates and dichromates, or in trivalent form as chromium salts. In water supplies hexavalent chromium is a particularly objectionable constituent. Trivalent chromium, although relatively inert, is also regarded as undesirable.

The Palintest Chromicol test provides a means of measuring hexavalent chromium over the range 0 - 1.0 mg/L.

### **Method**

In the Palintest Chromicol method, hexavalent chromium salts in acidic conditions react with diphenylcarbazide to give a purple coloured complex. This provides a measure of the hexavalent chromium ( $\text{Cr}^{\text{VI}}$ ) present in the sample. 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 tests is proportional to the chromium concentrations and is measured using a Palintest Photometer.

### **Reagents and Equipment**

Palintest Chromicol No 1 Tablets  
Palintest Chromicol No 2 Tablets  
Palintest Automatic Wavelength Selection Photometer  
Palintest Test Tubes, 10 mL glass (PT 595)

## **Test Procedure - Hexavalent Chromium**

- 1 Fill round test tube to the 10 mL mark.
- 2 Add one Chromicol No 1 tablet, crush and mix to dissolve.
- 3 Add one Chromicol No 2 tablet, crush and mix to dissolve.
- 4 Stand for 10 minutes without disturbing the solution to allow full colour development and to enable any undissolved particles to settle.
- 5 Select Phot 55 on the Photometer.
- 6 Take photometer reading in the usual manner (see Photometer instructions).
- 7 The result represents the hexavalent chromium concentration (chromates and dichromates) as mg/L Cr.

## **Interferences**

Levels of dissolved iron above 1 mg/L cause low results. To increase the tolerance, repeat the test using two Chromicol No 1 tablets and one Chromicol No 2 tablet. Tannin causes complexation which prevents a response in the test.

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