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Water quality—Determination of total chromium

水质 总铬的测定

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Water quality—Determination of total chromium

1 Definition

Total chromium is to be determined by use of diphenylcarbazide spectrophotometric method after trivalent chromium is oxidized to hexavalent chromium. When the chromium content is high (greater than 1 mg/L), ferrous ammonium sulfate titration method can be used.

Part I Potassium permanganate oxidation - diphenylcarbazide spectrophotometric method

2 Scope of application

2.1 This standard applies to determination of total chromium in the surface water and industrial wastewater.

2.2 Range of determination

The sample volume is 50mL; use the cuvette with optical path length of 30mm; the minimum detectable amount in this method is 0.2 μ g chromium; the minimum detectable concentration is 0.004mg/L; use the cuvette with optical path length of 10mm; the concentration of upper limit of determination is 1.0mg/L.

2.3 Interference

Iron content is greater than 1mg/L and shows yellow; hexavalent molybdenum and mercury also react with chromogenic agent and generate colored compounds; however, in the acidity of color development of the present method, the reaction is insensitive, and the concentrations of molybdenum and mercury are up to 200mg/L without interference in the determination. Vanadium plays the role in interference, and when the content thereof is higher than 4mg/L, it will interfere in the color development. However, the color will fade 10min after reaction between the vanadium and the chromogenic agent.

3 Principle

Trivalent chromium in the acidic solution, trivalent chromium in the test sample is oxidized into hexavalent chromium by potassium permanganate. Hexavalent chromium reacts with diphenylcarbazide and generates compounds of purplish red color, and conduct

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