
Barium

For water, wastewater, oil-field water and seawater

Turbidimetric Method

Introduction

Although barium is relatively abundant in nature, usually only trace amounts are found in water. Barium concentrations average about 0.05 mg/L in potable waters, but may range as high as 0.9 mg/L in some natural waters. More than 1 mg/L of barium implies that the water is not suitable for drinking and is polluted by industrial wastes. Barium and its compounds can be found in pigments, rat poisons, fireworks, and are used in rubber making, x-ray photography and even as weighting agents for oil well drilling.

Chemical reactions

Barium is determined by adding sulfate to the water sample to form barium sulfate, which precipitates. These particles are held in suspension as colloids by the BariVer™ 4 Reagent. The barium concentration is determined by measuring the resulting turbidity using a spectrophotometer or colorimeter. The barium concentration is proportional to the increase in turbidity when barium sulfate precipitates. The Hach procedure uses sodium sulfate, contained in BariVer 4 Reagent Powder, as the source of sulfate. The BariVer 4 Method is especially useful for brines where barium and sulfate coexist in solution and precipitation usually cannot be initiated by the simple addition of more sulfate.

