Potassium

For water and wastewater **Tetraphenylborate Method**

Introduction

Potassium, one of the most abundant elements, is found in many minerals. Soils contain approximately 1 to 4% potassium. Concentrations of potassium in most drinking water is usually less than 20 mg/L; occasionally brines may contain more than 100 mg/L. The greatest areas of interest in measurement of potassium levels probably are medicine and agriculture, due to the importance of potassium as a mineral for plants and animals. Potassium salts, particularly potash, are common in fertilizers.

The Tetraphenylborate Method for determination of potassium in water is accurate, rapid, and inexpensive. In the reaction, a precipitate is formed and the resulting increase in turbidity is measured. All necessary reagents are packaged in three powder pillows to provide reagent stability, convenience and accuracy.

Chemical reactions

Potassium combines with sodium tetraphenylborate to form potassium tetraphenylborate, a white precipitate. The precipitate remains in suspension in samples with low concentrations of potassium, causing an increase in turbidity.

Figure 1 Chemical reaction between potassium and tetraphenylborate

The sodium tetraphenylborate is contained in Potassium 3 Reagent Powder Pillows. Ammonium salts, magnesium and calcium interfere with the precipitation. Potassium 1 Reagent Powder Pillows and Potassium 2 Reagent Powder Pillows prevent these interferences.