

- 4.5 Type of flame: Slightly oxidizing
- 5.0 Analysis Procedure
- 5.1 For the analysis procedure and the calculation, see "Direct Aspiration", part 9.1 of the Atomic Absorption Methods section of this manual.
- 6.0 Notes
- 6.1 In air-acetylene or other high temperature flames ($> 2800^{\circ}\text{C}$), potassium can experience partial ionization which indirectly affects absorption sensitivity. The presence of other alkali salts in the sample can reduce this ionization and thereby enhance analytical results. The ionization suppressive effect of sodium is small if the ratio of Na to K is under 10. Any enhancement due to sodium can be stabilized by adding excess sodium ($1000\ \mu\text{g}/\text{mL}$) to both sample and standard solutions. If more stringent control of ionization is required, the addition of cesium should be considered. Reagent blanks should be analyzed to correct for potassium impurities in the buffer stock.
- 6.2 The 404.4 nm line may also be used. This line has a relative sensitivity of 500.
- 6.3 To cover the range of potassium values normally observed in surface waters (0.1-20 mg/L), it is suggested that the burner head be rotated. A 90 degree rotation of the burner head provides approximately one-eighth the normal sensitivity.
- 6.4 The flame photometric or colorimetric methods may also be used (Standard Methods, 14th Edition, p 234 & 235).
- 6.5 Data to be entered into STORET must be reported as mg/L.
- 7.0 Precision and Accuracy
- 7.1 In a single laboratory (EMSL), using distilled water samples spiked at concentrations of 1.6 and 6.3 mg K/L. The standard deviations were ± 0.2 and ± 0.5 , respectively. Recoveries at these levels were 103% and 102%, respectively.