

Method Abstract

Summary: This method uses the technique of flame emission spectrometry. Burning natural gas, manufactured gas, or propane with compressed air produces a high temperature, stoichiometric flame. The sample solution is aspirated directly into the highly stable flame. The sample breaks down to its ground state elements and becomes excited. Light emitted from the desired element (potassium) passes through a transmission filter and is detected by a photodiode. The output of the photometer is amplified and displayed on the digital display, and the analog output is directed to the WinFLOW™ computer system.

Interferences: Possible interference from rubidium, calcium, strontium, and lanthanum occur at high concentrations. Filter or centrifuge turbid samples prior to analysis to prevent the nebulizer from clogging.

Performance Specifications:

Range	0.5–100 mg/L potassium
Throughput	25 samples/hour
Precision at 0.5 mg/L	<4% RSD
10 mg/L	<2% RSD
Method Detection Limit (MDL)	0.1 mg/L

Chemicals:

Postassium chloride, KCl
Nitric acid, HNO₃

Basic Flow Diagram:



Selected References: Dean, J.A.; Rains, T.C. *Flame Emission and Atomic Absorption Spectrometry*; Marcel Dekker, Inc: New York, 1975; 18–19, 47.