

Determination of Potassium and Sodium Content in Cigarette Paper

1 Sample solution preparation :

0.1g sample (precision to one ten thousandth) was weighed and placed in an inner tank of microwave digester, added with 10mL 15% nitric acid, covered, and placed in the microwave digester for digestion. Upon digestion completion, it was removed for cooling, then sample solution was transferred into a 100 mL volumetric flask, the inner tank inner wall was rinsed 3-4 times with 0.5% nitric acid. Those rinsing solution were collected in the 100 mL volumetric flask, diluted up to the volume with 0.5% nitric acid, shaken well, spared for later use.

2 Experimental equipment and reagents :

AA7000 series atomic absorption spectrophotometer (with K, Na hollow cathode lamp, EWAI Inc.)

Microwave digestion can

Microwave digester

Nitric acid (HNO₃): excellent grade pure

K standard solution (National Reference Materials Research Center)

Na standard solution (National Reference Materials Research Center)

3 Instrument conditions

| Parameter | Wavelength (nm) | Slit width (nm) | Burner height (mm) | Fuel gas flow rate (L/min) | Lamp current (mA) | Flame type |
|-----------|-----------------|-----------------|--------------------|----------------------------|-------------------|-----------------|
| K | 766.5 | 0.4 | 10 | 1.3 | 3 | Air - acetylene |
| Na | 589.0 | 0.2 | 10 | 1.3 | 2 | Air - acetylene |

4 Standard solution preparation

Each 100 mL standard solution should be added with 1.5 mL 100 g/L cesium chloride solution.

| Element | Concentration (µg/mL) | | | | | |
|---------|-----------------------|------|------|------|------|--|
| K | 0 | 0.25 | 0.50 | 1.00 | 2.00 | |
| Na | 0 | 0.25 | 0.50 | 1.00 | 2.00 | |

5 Standard curve

