



Oznaczanie sodu w szklach  
Determination of Sodium in Glass

**MS** *Spektrum*

**Equipment Required:**

1. BWB Flame Photometer
2. Platinum crucible with lid
3. Accurate balance weighing to +/-0.0005 g

**Reagents:**

1. Potassium carbonate (Reagent)
2. BWB 10 000 ppm Na Standard
3. Potassium hydroxide
4. Potassium chloride
5. Glacial acetic acid
6. Hydrochloric acid

**Reagent and Standards Preparation:**

## Buffer Solution:

Dissolve 28 g KOH in 300 ml deionised water in a 600 ml beaker. When completely dissolved add 30 ml glacial acid. Add 37 g KCl and dissolve. Cool to ambient temperature and dilute to 1 litre in a volumetric flask with deionised water.

## Blank Preparation:

To a 1 litre volumetric flask add 150 ml buffer solution and dilute to 1 litre using deionised water.

## Standard Preparation:

To a 1 ml of BWB 10 000 ppm Na standard in a 1 litre volumetric flask add 150 ml buffer solution. Adjust to pH 7.5 with HCl. Dilute to the mark with deionised water. This is 10 ppm Potassium. From the 10 ppm K standard prepare 7.5, 5 and 2.5 ppm standards using the blank solution as diluent. Ensure all standards have a pH value of 7.5

**Sample Preparation:**

Fuse an accurately weighed powdered sample with 2 g Potassium Carbonate in a platinum crucible. When a clear fused melt is obtained continue heating for approximately 1 minute. Remove the crucible from the burner and pour the contents onto a cooling plate.

Place the crucible, crucible lid and cooled melt into a 400 ml beaker, add 75 ml buffer solution and dilute to 200 ml using boiling deionised water.

Place the beaker on a water bath for 30 minutes to loosen the melt from the crucible. Remove crucible and crucible lid from beaker. Filter the solution into a 1 litre volumetric flask ensuring that deionised water washings from the beaker are also filtered.

Dilute to 300 ml and adjust the pH to 7.5 with 1:3 HCl. Dilute to the mark with deionised water.

**Method:**

1. Set the flame photometer up as in its instruction manual.
2. Set the zero using the blank solution.
3. Aspirate the standards into the instrument entering each value when prompted.
4. Aspirate the sample solution and record the display reading. (If the value is higher than that of the top standard, dilute sample with blank until the value falls in the range of the calibration curve.)
5. Multiply the Sodium concentration of the sample by the dilution factor.



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