DETERMINATION OF MACRONUTRIENTS IN FERTILIZERS

INTRODUCTION
The method is used for the determination of the mass fraction of all primary and secondary nutrients (macronutrients) in fertilizers by capillary electrophoresis. The method allows the determination of such macronutrients as ammonium nitrogen (ammoniacal nitrogen, NH₄-N), nitrate nitrogen (NO₃-N), phosphorus (P or P₂O₅), potassium (K or K₂O) as well as sodium, magnesium, calcium, sulfur, chlorine (chloride), fluoride.

MEASUREMENT METHOD
The measurement method is based on extraction of the components from a sample by water and determination of cations (ammonium, potassium, sodium, magnesium, calcium) and anions (chloride, sulfate, nitrate, fluoride, phosphate) by capillary electrophoresis with indirect UV detection at the wavelength of 254 or 267 nm.

EQUIPMENT AND REAGENTS
The CAPEL capillary electrophoresis system is used in measurements. Data acquisition, collection, processing and output are performed using a personal computer running under WINDOWS® XP/7/8/10 operating system with installed dedicated software package ELFORUN.

EXAMPLES OF REAL ANALYSES

Sample: compound fertilizer

Measurement results:
1 – ammonium (5.7% as ammonium nitrogen)
2 – potassium (27.8% as K₂O)
3 – sodium (0.4%)
4 – magnesium (0.1%)
5 – calcium (0.05%)

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To get more specific information, please contact the representative by sales@lumexinstruments.com