



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, $\text{NH}_4\text{-N}$), nitrate nitrogen ($\text{NO}_3\text{-N}$), phosphorus (P or P_2O_5), potassium (K or K_2O) as well as sodium, magnesium, calcium, sulfur, chlorine (chloride), fluorine (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

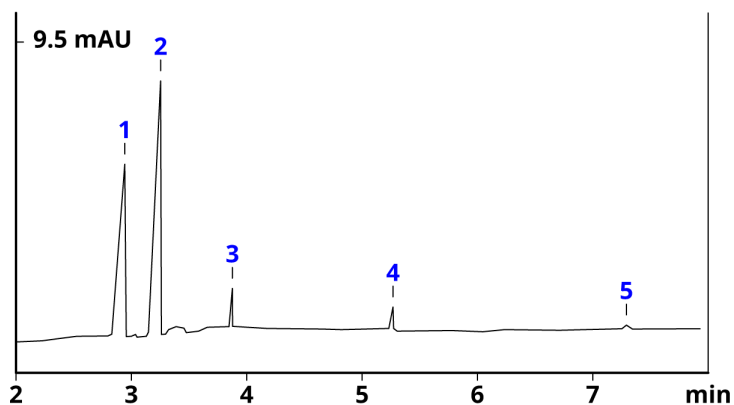
The CAPEL capillary electrophoresis system is used in measurements. Data acquisition, collection, processing and output are performed using a personal computer running under WINDOWS® XP/7/8/10 operating system with installed dedicated software package ELFORUN.

EXAMPLES OF REAL ANALYSES

Sample: compound fertilizer

Measurement results:

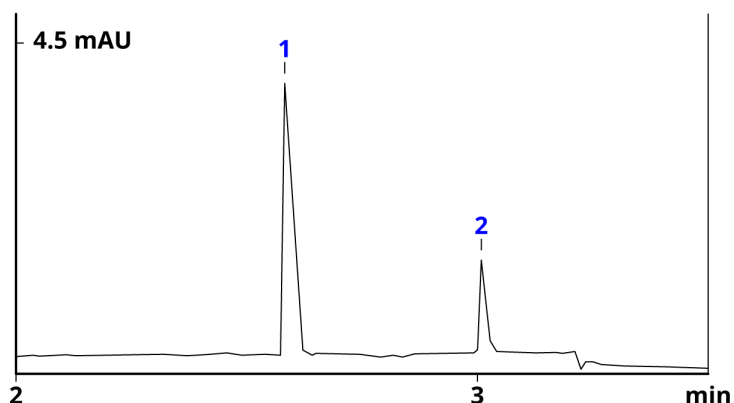
- 1** – ammonium (5.7% as ammonium nitrogen)
- 2** – potassium (27.8% as K_2O)
- 3** – sodium (0.4%)
- 4** – magnesium (0.1%)
- 5** – calcium (0.05%)



Sample: compound fertilizer

Measurement results:

- 1** – nitrate (13.4% as nitrate nitrogen)
- 2** – phosphate (5.4% as P_2O_5)



The contents on this paper are subject to change without notice.

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