

DETERMINATION OF ANIONS IN FEEDSTUFFS, COMPOUND FEEDS, AND FEED RAW MATERIALS

Lumex Method M 04-73-2011

INTRODUCTION

The method¹ is used for the determination of the mass fraction of water-soluble chloride, nitrate, phosphate, and total sulfate in **all types of feedstuffs, compound feeds, fodders, premixes, fodder additives, and feed raw materials (of plant, animal, and mineral origin)** by capillary electrophoresis.

MEASUREMENT METHOD

The measurement method is based on capillary zone electrophoresis with indirect UV detection at the wavelength of 254 nm.

MEASUREMENT RANGE

The measurement ranges for the components are presented in the table below.

Compound	Measurement range*, %
Chloride	0.005–60
Nitrate	0.002–1.0
Phosphate	0.005–80
Sulfate	0.005–70

* For the sample weight of 100–500 mg.

The determination of phosphate is not hindered by the presence of carbonate (with mass concentration ratio of 10:1) and all other analytes (with mass concentration ratio of 1000:1). The determination is not hindered by the presence of other inorganic anions, organic acids (acetic, citric, lactic, formic, oxalic) and neutral organic substances.

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.

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EXAMPLES OF REAL ANALYSES

BGE: chromate, with diethanolamine and CTA-OH

Capillary: $L_{\text{eff}}/L_{\text{tot}}$ 50/60 cm, ID 75 μm

Injection: 150 mbar x sec

Voltage: – 25 kV

Temperature: + 20 °C

Detection: 254 nm

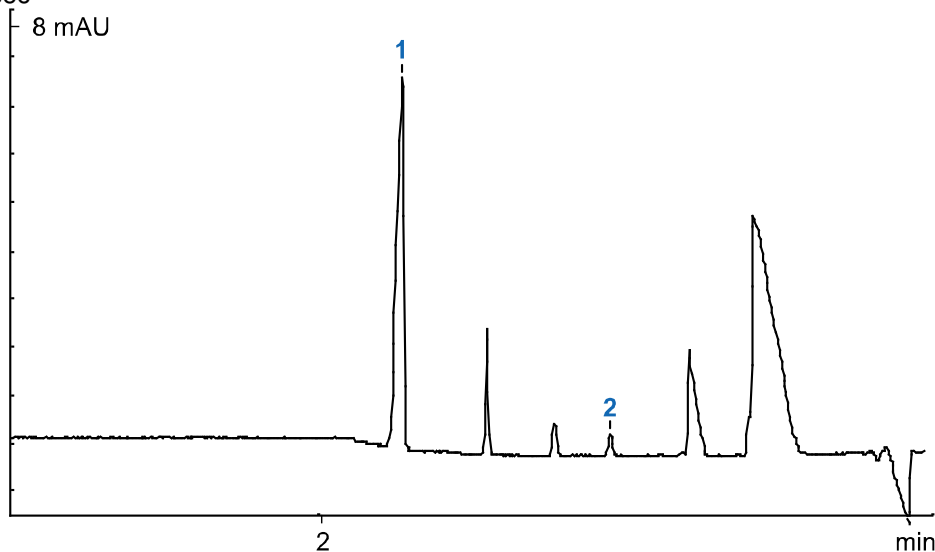
Sample: poultry meal

Measurement results

(water-soluble forms):

1 – chloride (0.42%)

2 – nitrate (0.03%)



¹ National Standard GOST R 56375-2015.



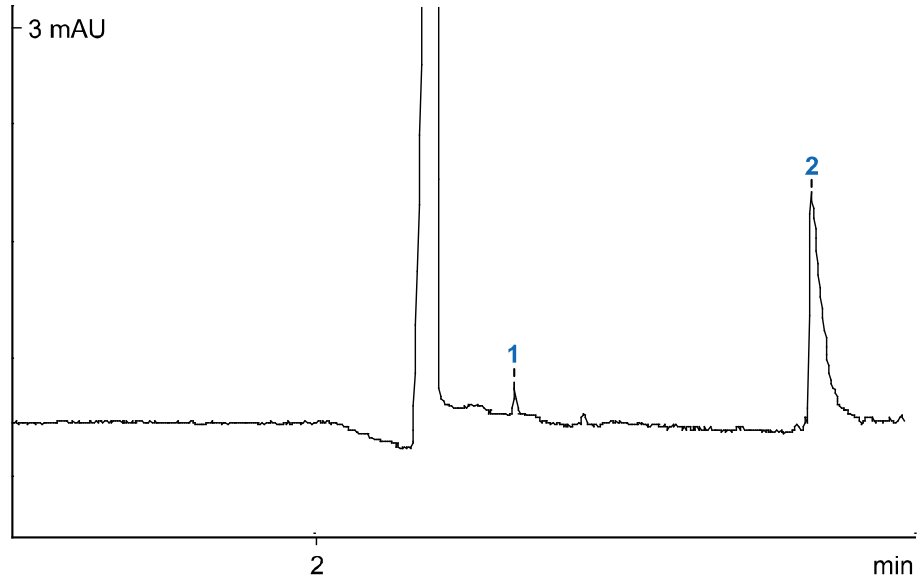
Sample: poultry meal

Measurement results

(total content):

1 – sulfate (0.09%)

2 – phosphate (3.4%)



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

