



## DETERMINATION OF TRYPTOPHANE IN FODDERS AND RAW MATERIALS BY CAPILLARY ELECTROPHORESIS

GOST R 52347-2005

### INTRODUCTION

The method enables fast quantitative determination of amino acid tryptophane in feeds, mixed fodders, and raw materials.

### MEASUREMENT METHOD

Capillary electrophoresis for the determination of tryptophane is based on differential migration of its ionic form in a quartz capillary under the influence of the applied electric field. Identification of tryptophane is made by measuring its own absorbance at 219 nm wavelength in a borate buffer at 40 °C.

Basic hydrolysis of fodder sample is done according to a certified protocol in closed containers with 1.5 M barium hydroxide for 16 hours at 110 °C. After removal of the excess of the base the treated solution is analyzed by capillary electrophoresis.

### RANGES OF PERCENTAGE OF TRYPTOPHANE

Measuring range in percentage for tryptophane is **0.1–2.0 % (w/w)** of the analyzed fodder. The presence of other amino acids does not influence its determination.

### EQUIPMENT AND REAGENTS

The "CAPEL<sup>®</sup>-105/105M" capillary electrophoresis system with a special capillary cassette for the amino acid analysis is used in measurements.

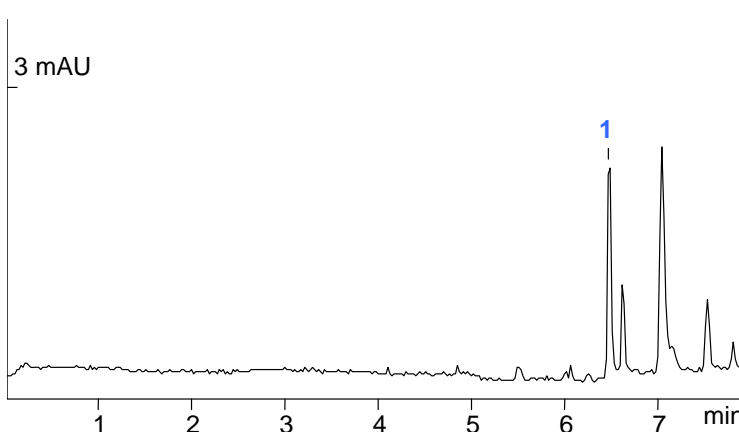
All reagents must be of analytical grade or higher.

Data acquisition, collection, processing and output are performed using a personal computer running under "WINDOWS<sup>®</sup> 2000/XP" operating system with installed dedicated software package for acquisition and processing of chromatography data.

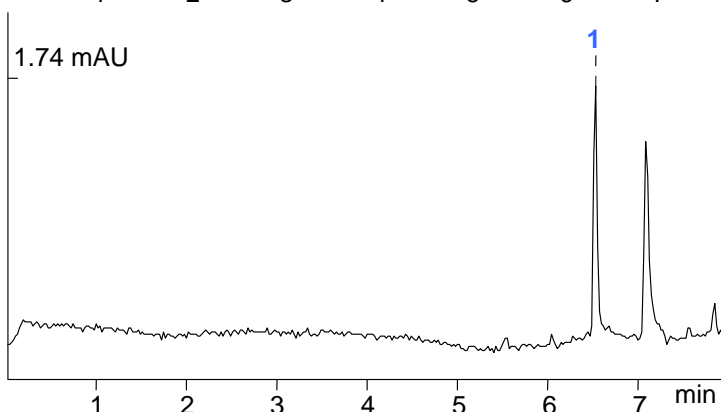
### EXAMPLES OF REAL ANALYSES

**Buffer :** borate (pH 9.18)  
**Capillary:**  $L_{\text{eff}}/L_{\text{tot}}$  65/75 cm;  
ID 50  $\mu\text{m}$   
**Injection:** 150 mbar x sec  
**Voltage:** + 20 kV  
**Temperature:** + 40 °C  
**Detection:** 219 nm

**Sample:** fish flour (100 mg)  
**Measurement results:**  
**1** – tryptophane (0.78%)



**Sample:** meat-bone flour (100 mg)  
**Measurement results:**  
**1** – tryptophane (0.52%)



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