# Capel

Capillary electrophoresis system

# Determination of **fructose, glucose, lactose,** and **saccharose** in beverages, food products, raw materials, food and feed additives


## INTRODUCTION

The method allows determination of the mass concentration of fructose, glucose, lactose, and saccharose in samples of all types of beverages and all types of food products (including milk and dairy products), food raw materials, food additives, and feed additives by capillary electrophoresis.

## MEASUREMENT METHOD

The measurement method is based on extraction of sugars from a solid sample by water (dilution of a liquid sample) and their determination by capillary electrophoresis with indirect UV detection at the wavelength of 230 nm.

## MEASUREMENT RANGE

The measurement range for sugars is **2–800 g/L** (mass concentration), **0.2–80 %** (mass fraction).
The following components in concentrations, typical for the mentioned samples, do not interfere with the target sugars determination:

- organic acids and their salts: citric, lactic, acetic, malic, succinic, formic, propionic, tartaric, oxalic, butyric, ascorbic, sorbic, benzoic, glutamic, guanylic, inosinic;
- acesulfame K, saccharin;
- ribose, rhamnose, maltose.

## EQUIPMENT AND REAGENTS

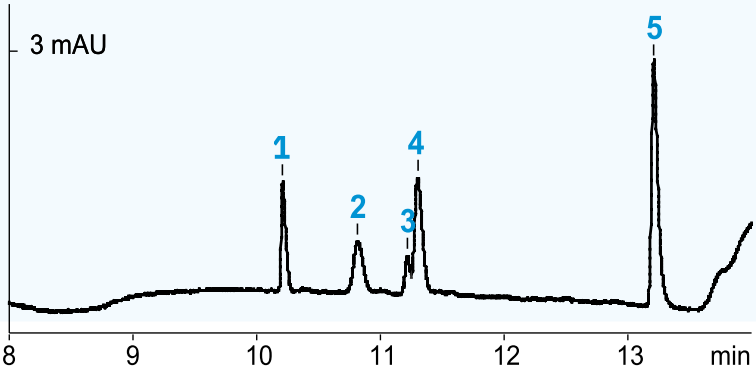
The Capel capillary electrophoresis system is used in measurements. Data acquisition, collection, processing, and output are performed using a personal computer running under Windows® operating system with Elforun software installed.
Lumex Instruments set, order **No. 0300002753**.

## EXAMPLES OF REAL ANALYSES

**BGE:** 2,6-pyridinedicarboxylic acid and MTAB
**Capillary:** $L_{eff}$/ $L_{tot}$ 75/65 cm, ID 50 µm
**Injection:** 150 mbar × s
**Voltage:** -25 kV
**Temperature:** 20 °C
**Detection:** 230 nm

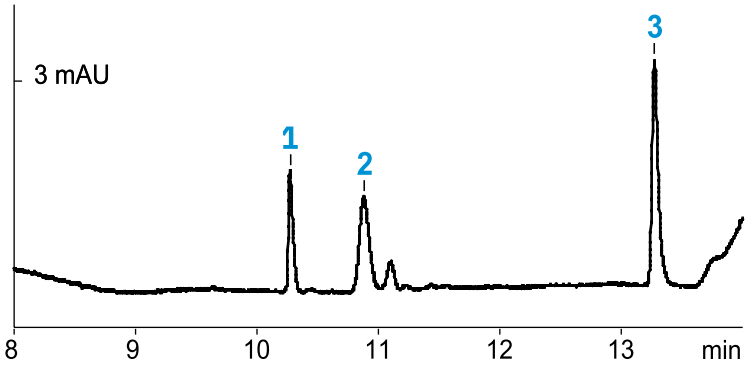
**Sample:** yoghurt

**Found (%):**
1 – fructose (1.22)
2 – glucose (1.15)
3 – unknown component
4 – lactose (3.0)
5 – saccharose (5.7)



**Sample:** soy sauce

**Found (%):**
1 – fructose (5.8)
2 – glucose (9.4)
3 – saccharose (21.5)




**Sample:** feed additive

**Found (%):**
1 – lactose (19.2)
2 – saccharose (5.2)