



IDENTIFICATION AND DETERMINATION OF **SYNTHETIC DYES** IN SOFT AND ALCOHOLIC DRINKS

LUMEX Method M 04-48 (2007)

INTRODUCTION

The method allows identification and determination of synthetic dyes in samples of soft and alcoholic drinks by capillary electrophoresis.

MEASUREMENT METHOD

The Capillary Electrophoresis (CE) method for the determination of synthetic dyes is based on their differential migration in a narrow quartz capillary under the influence of the applied electric field. Identification and quantitative determination of dyes is performed by measuring the UV absorbance at 254 nm (for "CAPEL[®]-103PT/104T" systems) or 215 nm (for "CAPEL[®]-105/105M" systems) wavelength.

MEASUREMENT RANGES

Name (C. I.)	E number	Measurement range, mg/L
Tartrazine (C. I. 19140)	E 102	1.0–250
Sunset Yellow FCF (C. I. 15985)	E 110	1.0–250
Carmoisine (C. I. 14720)	E 122	1.0–250
Amaranth (C. I. 16185)	E 123	1.0–50
Ponceau 4R (C. I. 16255)	E 124	1.0–250
Erythrosine (C. I. 45430)	E 127	1.0–50
Red 2G (C. I. 18050)	E 128	1.0–50
Allura Red AC (C. I. 16035)	E 129	1.0–250
Patent Blue V (C. I. 42051)	E 131	1.0–250
Indigotine (C. I. 73015)	E 132	1.0–250
Brilliant Blue FCF (C. I. 42090)	E 133	5.0–250
Green S (C. I. 44090)	E 142	1.0–250
Brilliant Black BN (C. I. 28440)	E 151	1.0–250

If concentration of one or several dyes is higher than the upper limit of the range, it is possible to dilute the sample by distilled water.

EQUIPMENT AND REAGENTS

The "CAPEL[®]-103RT/104T/105/105M" capillary electrophoresis system with high-voltage positive polarity is used in measurements.

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

All reagents must be of analytical grade or higher.

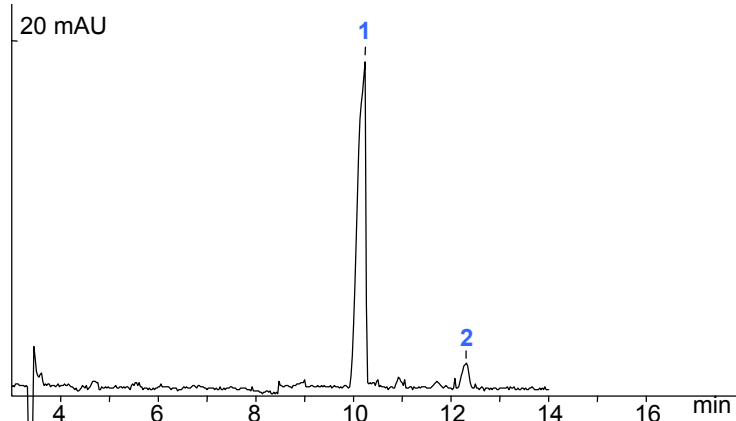
EXAMPLE OF A REAL ANALYSIS

Buffer: carbonate
Capillary: L_{EFF}/L_{TOTAL} 50/60 cm,
ID 75 µm
Injection: 300 mbar x sec
Voltage: + 25 kV
Temperature: 20 °C
Detection: 215 nm, direct

Sample: low-alcohol cocktail

Measurement results:

- 1 – Carmoisine (E 122) (33.8 mg/L)
- 2 – Ponceau 4R (E 124) (1.8 mg/L)



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