

Determination of Preservatives in Foodstuffs and Cosmetics

Method VFD0003J
HPLC

Column: Eurospher 100-5 C8, 125 x 4 mm

Order No. 12DE081ESJ

Phase: Eurospher 100-5 C8

Conditions: Eluent: A: Ammonium formiate buffer / methanol 50 /20
B: Ammonium formiate buffer / methanol 50 /70
Ammonium formiate buffer: 0.4 ml formic acid and 0.8 ml ammonia (25%) filled with water to 1l

Gradient:

Time (min)	% A	% B
0.00	100	0
10.00	0	100
12.00	0	100
12.02	100	0
15.00	100	0

Flow rate: 1.2 ml/min
Temperature: 40 °C
Volume: 20 µL

Detection: UV at 255 nm or λ program:
0.00 min 255 nm
1.80 min 235 nm
2.90 min 255 nm

Sample pretreatment: Preservatives in food or cosmetics will be extracted with the help of ammonium formiate buffer and methanol (60:40, v/v) in ultrasonic bath and slightly warming. The buffer solution will be adjusted at pH 4.8 by adding 5% ammonia solution. 1 to 5 g of the homogenized sample is extracted with 20 ml extraction solution in an ultrasonic bath for 10 min. 1 ml of the internal standard solution (2-methoxybenzoic acid, 1 mg/ml) is added to extraction solution for increasing the accuracy of the method. The suspension is transferred in a 50 ml volume flask. Interfering additives can be removed with 1 ml Carez I (150 g/L solution of potassium hexacyanoferrate in water) and 1 ml Carez II (300 g/L zinc sulfate in water). By analyzing of 1 g sample this is equivalent to 0.5 – 2 g preservative/kg or 0.05% - 0.2 %.

Substances: Sorbic acid, Benzoic acid, para hydroxybenzoic acid (PHB), Methylparaben (PHB-meth), Ethylparaben (PHB-eth), Propylparaben (PHB-prop), Butylparaben (PHB-butyl), 2-Methoxybenzoic acid (IS)

Keywords: Preservatives

Chromatogram:

Separation of preservative standard at different wavelength (255 nm blue, 235 nm red)

- 1 4-Hydroxybenzoic acid
- 2 2-Methoxybenzoic acid (IS)
- 3 Benzoic acid
- 4 Sorbic acid
- 5 Methylparaben
- 6 Ethylparaben
- 7 Propylparaben
- 8 Butylparaben

