

Analysis of Estrogens

Application #587

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Analysis of Estrogens

General Information

Market: Pharmaceutical

Matrix: None

Instrument type: HPLC

Description

Aromatic compounds can present a problem in liquid chromatography as in reversed phase it is difficult to get good retention and separation. In this application the Accucore Phenyl-X phase was employed to achieve the separation of four structurally related aromatic compounds classed as estrogens. Estrogens are a group of steroid compounds, named for their importance in the estrous cycle, which function as the primary female sex hormone. Estrogens are used as part of some oral contraceptives and in estrogen-replacement therapy for postmenopausal women. Three major naturally occurring estrogens in women are estrone (E1), estradiol (E2), and estriol (E3). Estradiol (E2) is the predominant form in nonpregnant females, estrone is produced during menopause, and estriol is the primary estrogen of pregnancy. Ethynylestradiol, a derivative of estradiol, is an orally bioactive estrogen used in almost all modern formulations of combined oral contraceptive pills. While the standard C18 phase fails to separate these four compounds, the Accucore Phenyl-X column can baseline resolve them isocratically and provides good retention and unique selectivity.

Method Details

Instrument parameters

Instrument Parameter	Value
Run Time Length	5.000 min
Mobile_phase	15:40:45 (v/v) acetonitrile: methanol : water
Column_Temperature	40C
Injection_volume	1µL
Flow_rate	0.40 mL/min
UV_detection	220nm

Gradient Details

No gradient information available.

Column Details

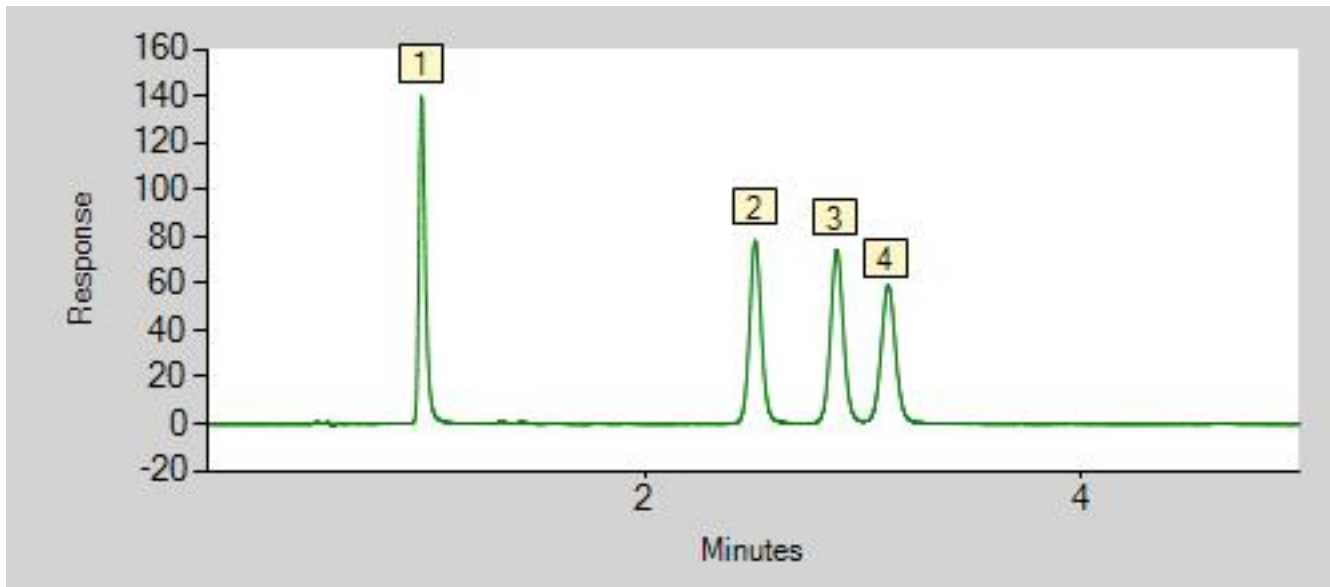
column_A	
Manufacturer	Thermo Fisher Scientific
Model	Accucore Phenyl
Diameter	2.1
Length	100
Particle Size	2.6
Packing Material	Phenyl

System information

Instrument Type	UHPLC
HPLC	generic

Results

Channel Detector_1_220nm



No	Peak_Name	*Compound _Class	Retention_Ti me	Peak_Area	Peak_Area_p c	Peak_Height	Peak_Height _pc	Plates_(USP)	Resolution_(USP)	Tailing_Facto r_(USP)
1	Estriol	n.a.	0.977	4.733	25.13	139.287	39.96	5674	20.47	1.40
2	Estradiol	n.a.	2.506	4.877	25.90	77.991	22.38	10566	3.67	1.07
3	Estrone	n.a.	2.879	4.943	26.25	73.420	21.07	11845	2.10	1.06
4	Ethynyl estradiol	n.a.	3.114	4.278	22.72	57.836	16.59	11155	n.a.	1.04

Appendix

The application can be accessed at <http://dlibrary.dionex.com/Public/View.aspx?ApplicationID=587>

Available Downloads

Filename	Size(bytes)
AN-Accucore-PhenylX-Estrogens-AN20594.pdf	412474

Related Information

No related information available.