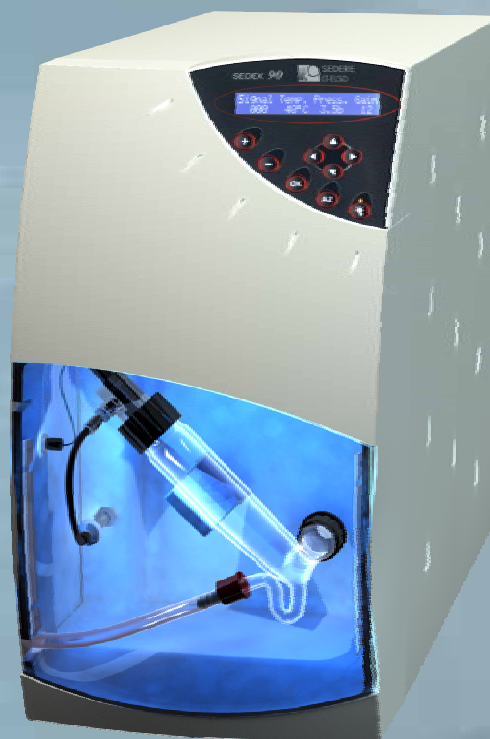
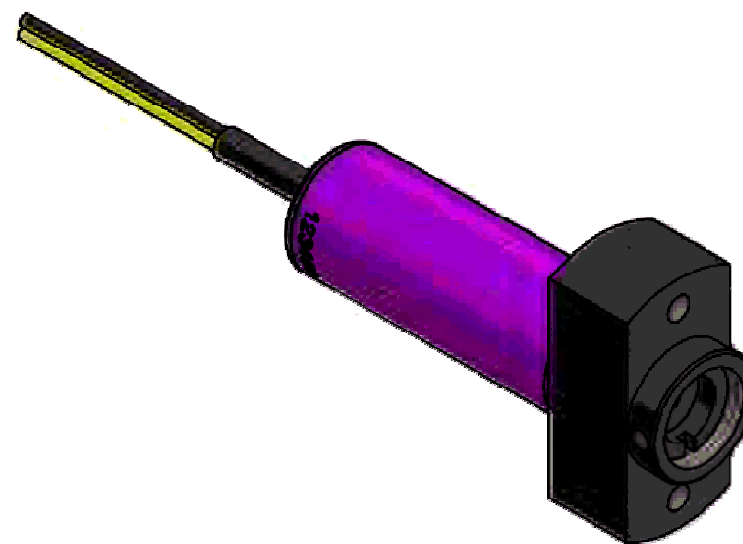
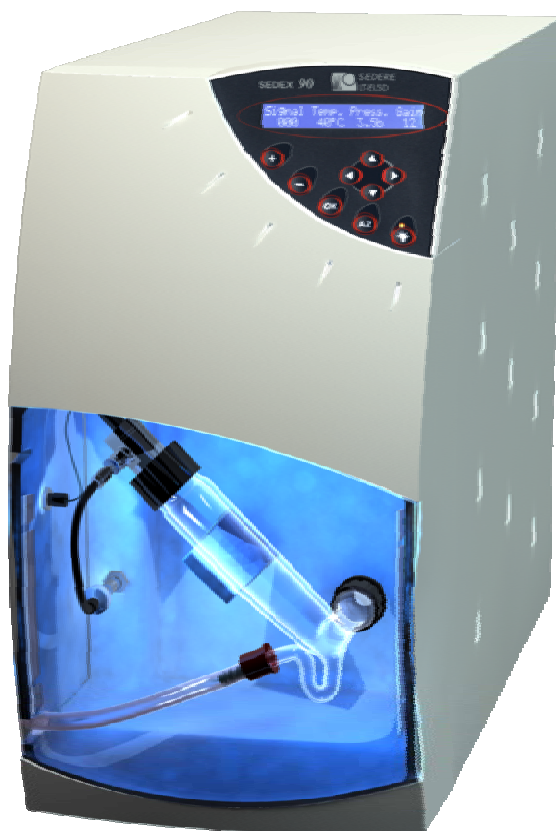


SEDEX 90LT Presentation

HPLC 2011, Budapest



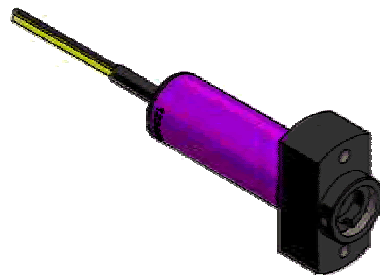
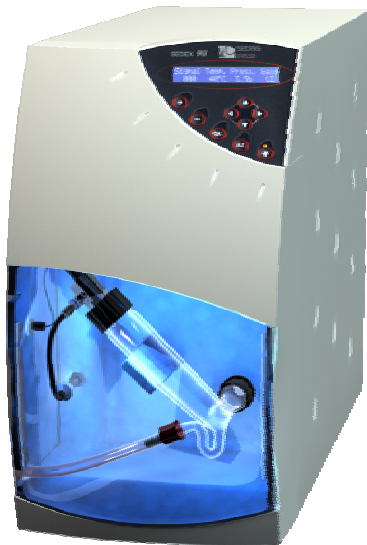
SEDEX 90LT Light Source



Selected Blue-Violet Laser

405nm – 10mW Output

SEDEX 90LT Light Source



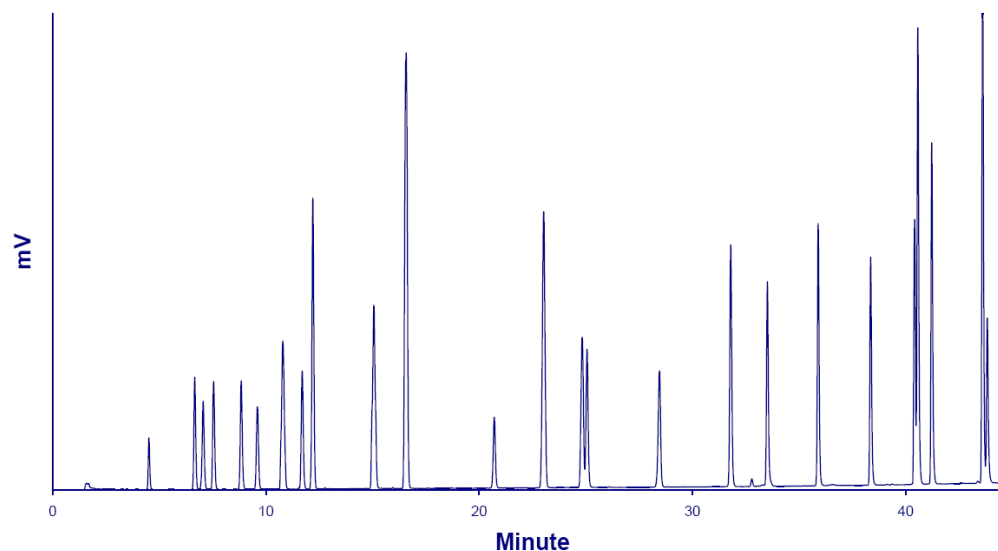
Laser Advantages:

- The beam is focused.
- The output light power is higher than LED or power LED.

Why 405nm?

- This wavelength corresponds to the maximum sensitivity of the PMT.
- This laser wavelength are now available in production thanks to blu-ray discs.

Generic HPLC/LT-ELSD Method for Lipids



Chromatogram of the Simultaneous HPLC/LT-ELSD Analysis of Fatty Acids, Fatty Alcohols, Fat-Soluble Vitamins, Mono-, Di- and TriGlycerides and Related Compounds.

Standard mixture: 25 Compounds (see Table next slide)

Injection volume: 2 μ L

Column: Hypersil GOLD (1,9 μ m, 2,1 x 200mm), 60°C

Flowrate: 0.3mL/min

Eluent: A: MeOH/ACN/H₂O/Formic acid (500:300:198:2) - B: MeOH/Acetone/Formic acid (598:400:2)

Gradient: 0-3 minutes: 100%A, 3-43 minutes: from 100%A to 100%B

Detector: SEDEX 90LT, 28°C, 3.5Bars

Generic HPLC/**LT-ELSD** Method for Lipids

Down to 500 Picograms!

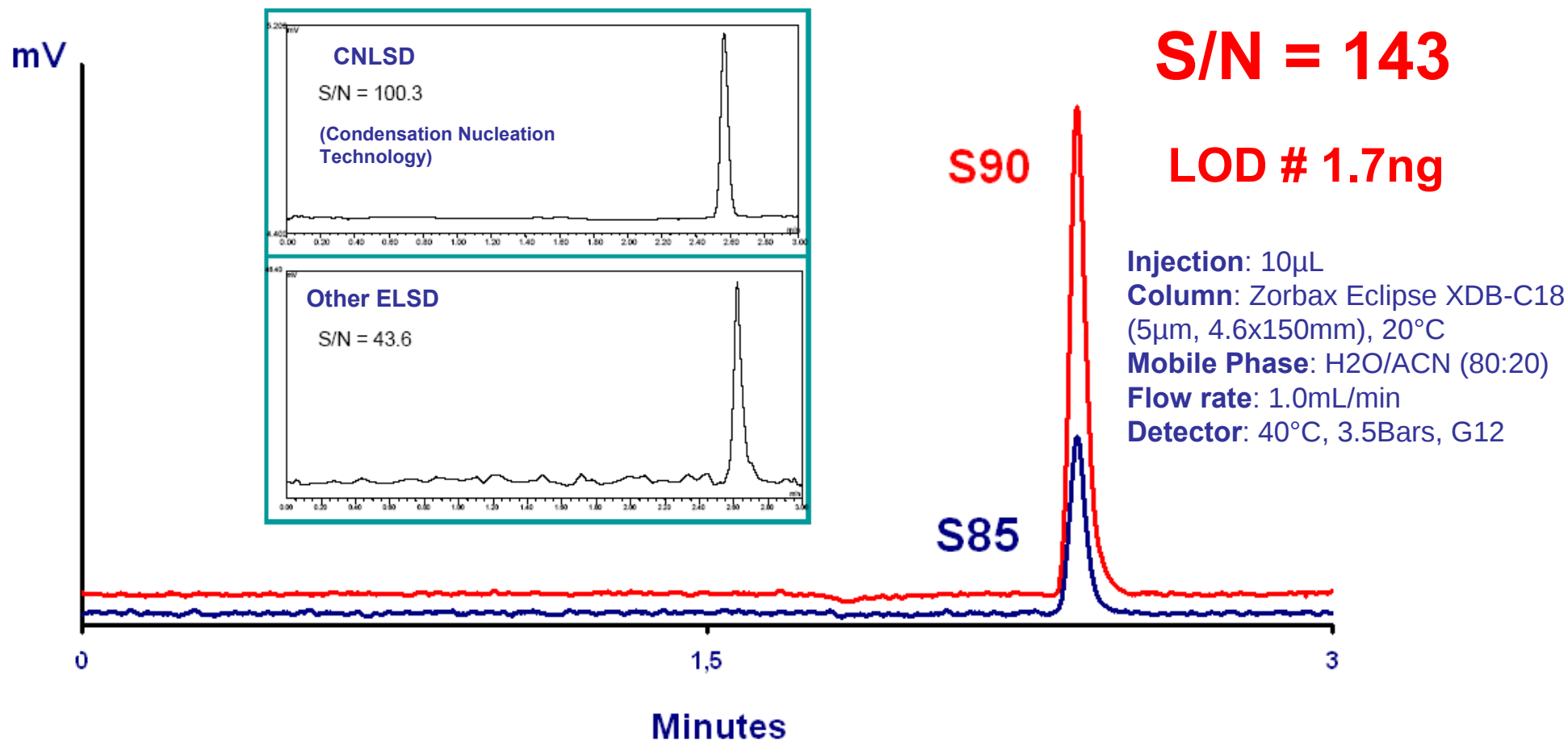
	RT	%RSD (n=6)		LOD (S/N=3)
	Minutes	RT	Response	ng (o.c.)
1 - Lauric acid	4.87	0.22	4.7	16.2*
2 - Linolenic acid	7.17	0.21	3.3	4.1
3 - Myristic acid	7.58	0.21	2.1	1.6
4 - Retinol (Vit A)	8.10	0.20	3.3	3.6
5 - Linoleic acid	9.43	0.20	2.1	5.1
6 - Monolein	10.21	0.14	3.3	4.8
7 - Palmitic acid	11.43	0.25	2.9	0.8
8 - Oleic acid	12.35	0.23	2.0	5.7
9 - Hexadecanol	12.88	0.12	4.6	2.1
10 - Stearic acid	15.77	0.16	2.2	0.5
11 - Octadecanol	17.32	0.11	2.6	0.5
12 - Eicosanol	21.63	0.06	3.1	0.7
13 - Cholesterol	23.80	0.17	2.8	1.3
14 - Docosanol	25.57	0.06	3.2	0.9
15 - α-Tocopherol (Vit E)	25.80	0.05	2.9	3.8
16 - Vitamin K	29.20	0.02	3.6	3.8
17 - Squalene	32.54	0.12	2.0	2.4
18 - Diolein	34.13	0.05	2.8	2.3
19 - Trilaurin	36.50	0.10	3.1	2.1
20 - Trilinolenin	38.90	0.08	4.0	2.5
21 - Trimyristin	40.97	0.08	4.7	1.7
22 - Coenzyme Q10	41.09	0.03	2.7	1.8
23 - Trilinolein	41.73	0.06	3.6	1.9
24 - Tripalmitin	44.09	0.06	3.9	1.7
25 - Triolein	44.29	0.06	4.5	1.1

* Semi-volatile compound

SEDEX 90LT vs. Other Technologies

SEDEX^{LT}-ELSD™

Caffeine 8ppm



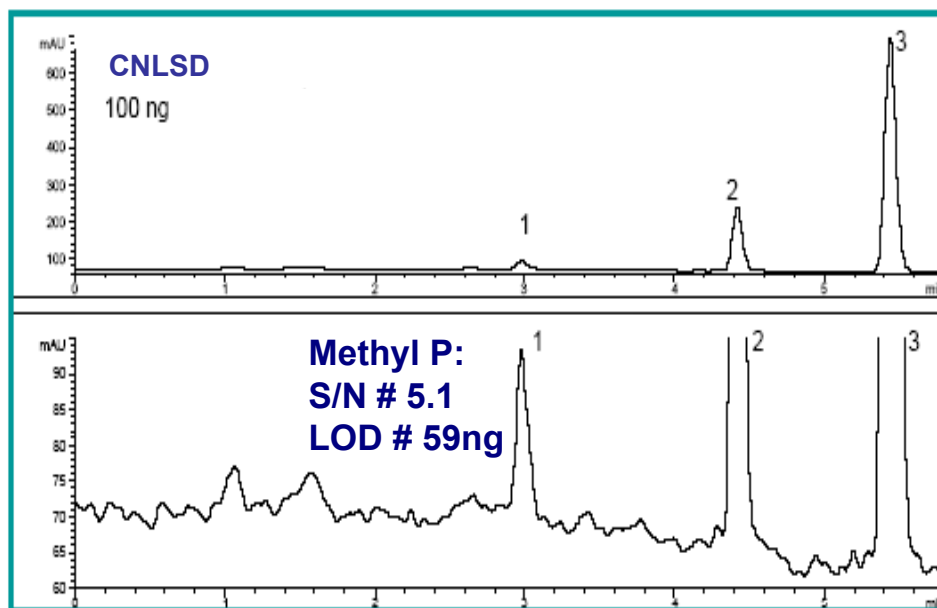
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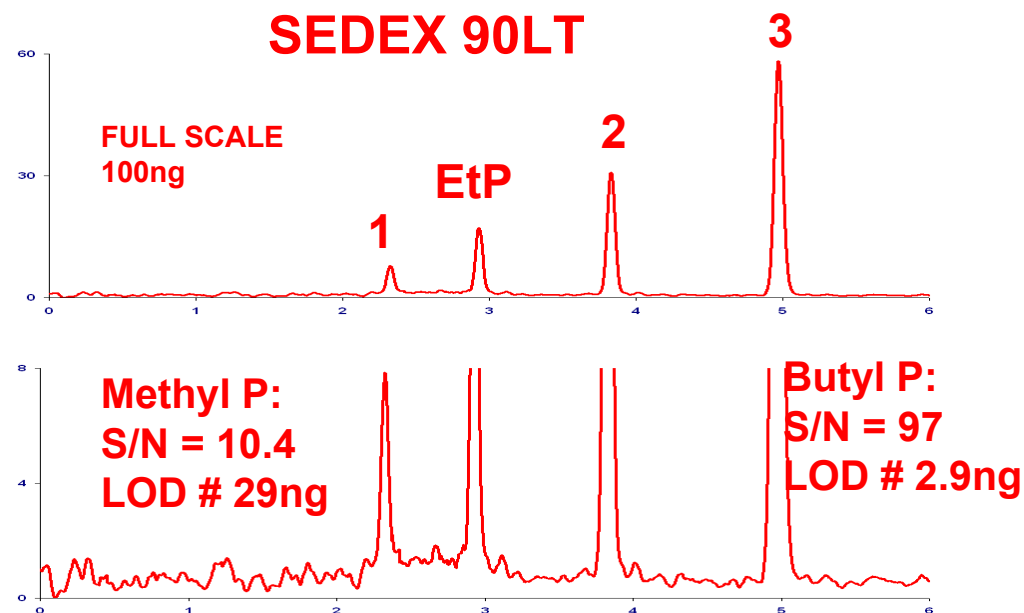
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SEDEX 90LT vs. Other Technologies

Parabens (10ppm each)



1 = methyl paraben, 2 = propyl paraben, 3 = butyl paraben



1: methyl paraben, EtP: ethyl paraben, 2: propyl paraben 3: butyl paraben

Injection: 10µL

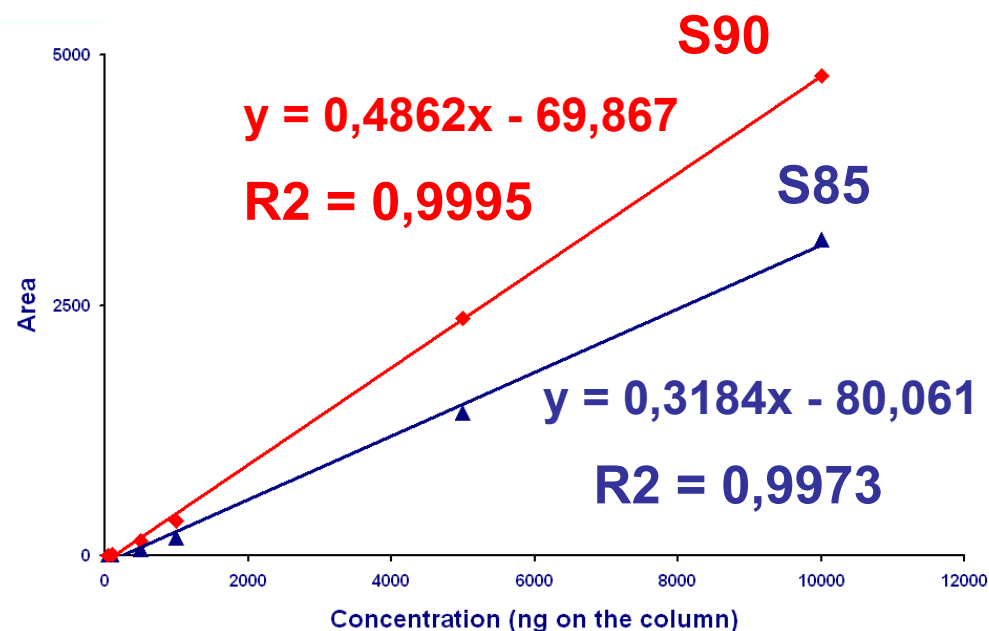
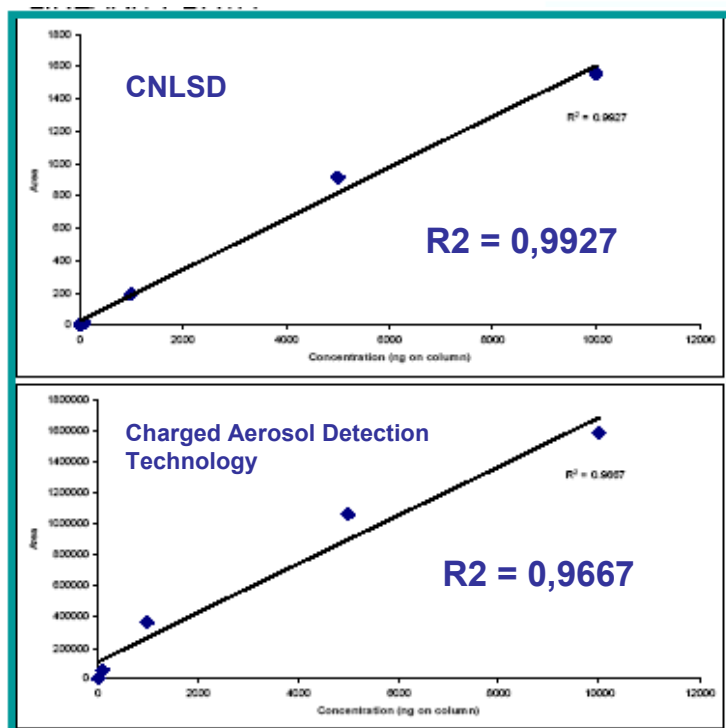
Column: Zorbax Eclipse XDB-C18 (5µm, 4.6x150mm), 20°C

Mobile Phase: H₂O/ACN (from 50:50 to 25:75 in 7 minutes)

Flow rate: 1.0mL/min

Detector: 28°C, 3.0Bars, G12

Linearity (Hydrocortisone)

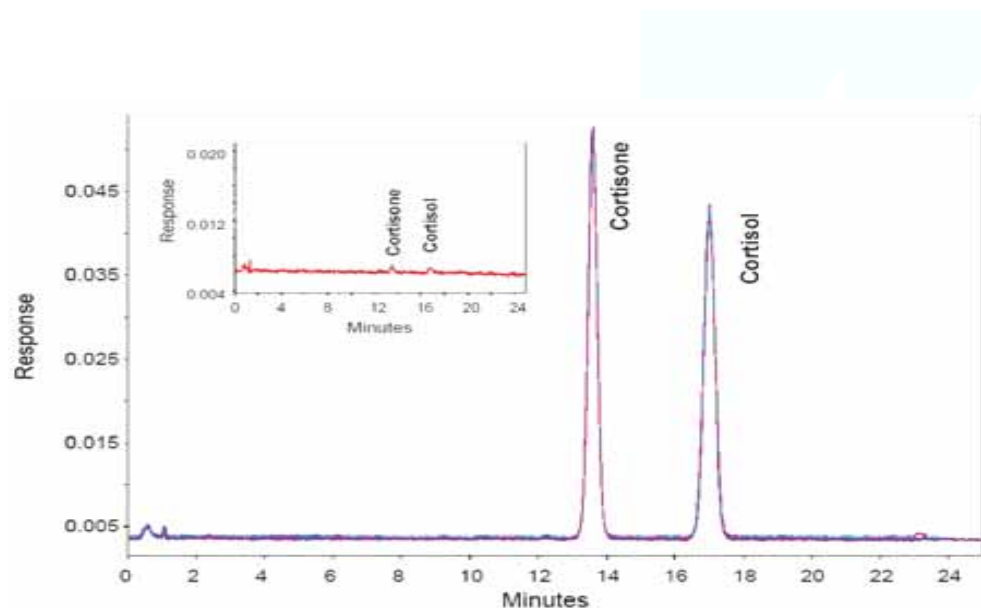


Injection: 10 μ L (From 5ppm to 1000ppm)
Column: Zorbax Eclipse XDB-C18 (5 μ m, 4.6x150mm), 20°C
Mobile Phase: H₂O/ACN (45:55)
Flow rate: 1.2mL/min
Detector: 40°C, 3.5Bars, G5

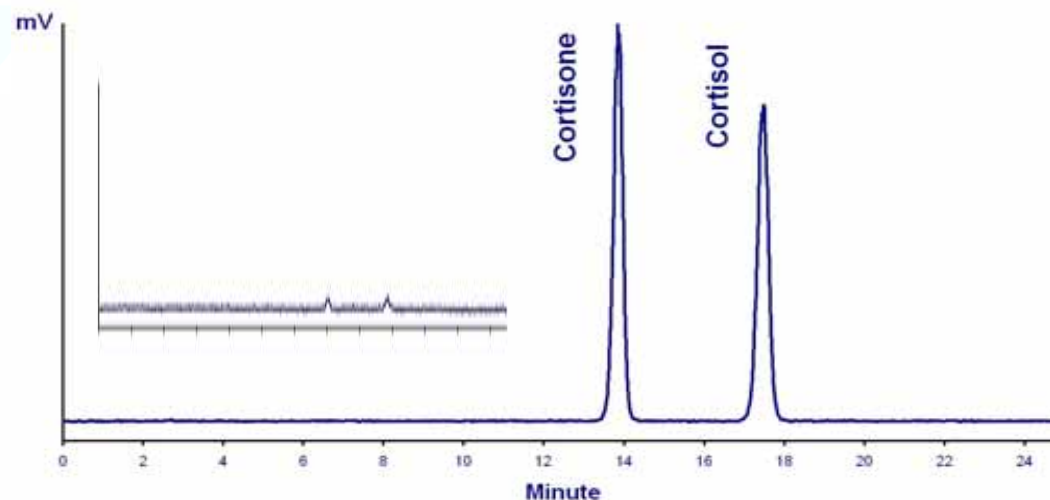
SEDEX 90LT vs. Other Technologies

SEDEX^{LT}-ELSD™

HPLC Analysis of Cortisone and Cortisol (500ng each on Column - Inset: 10ng each on Column)



Charged Aerosol Detection Technology



SEDEX 90LT

Injection: 10µL

Column: Stability Basic C18 (5µm, 4.6x250mm), 40°C

Mobile Phase: H₂O/MeOH (47:53)

Flow rate: 1.0mL/min

Detector: 40°C, 3.5Bars, G12



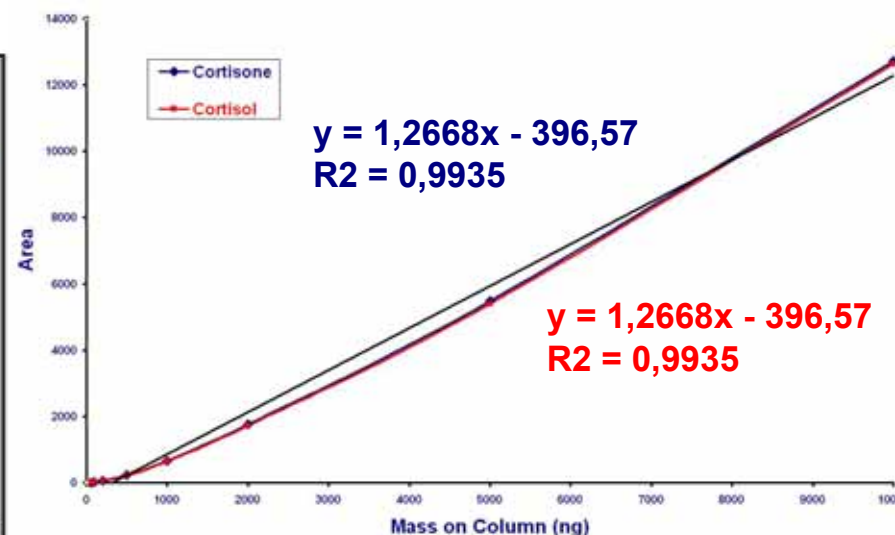
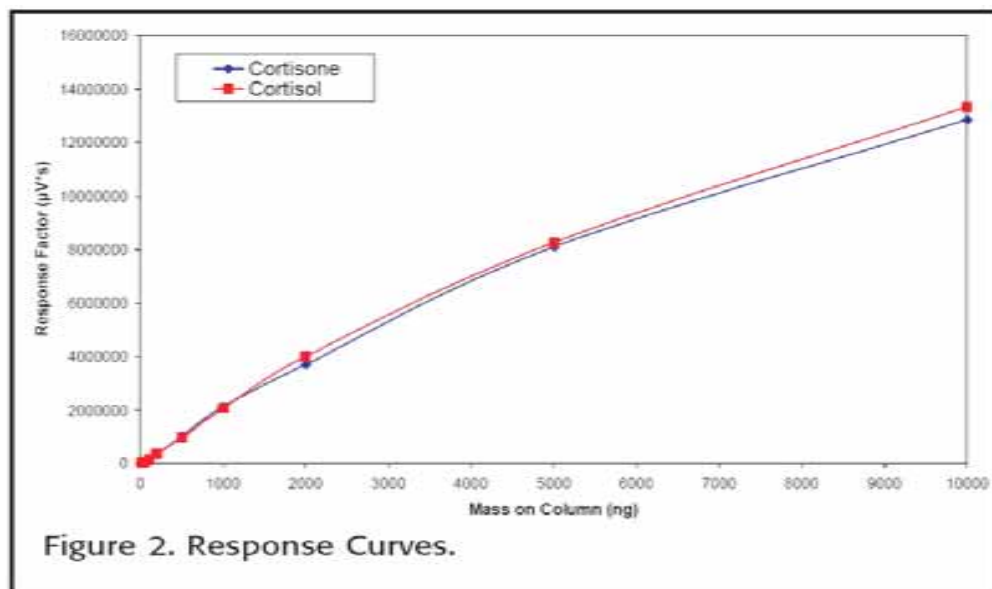
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SEDEX 90LT vs. Other Technologies

Response Curves for Cortisone and Cortisol



SEDEX 90LT

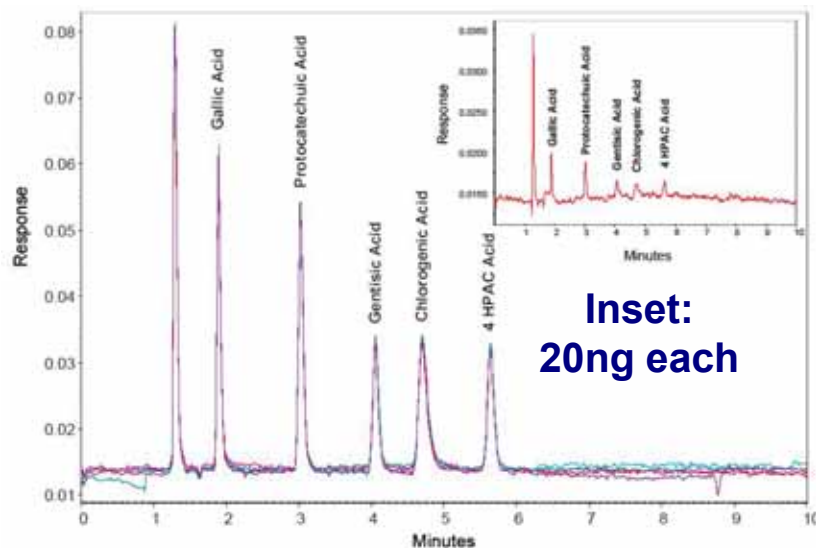
Charged Aerosol Detection Technology

Injection: 10µL (From 5ppm to 1000ppm)
Column: Stability Basic C18 (5µm, 4.6x250mm), 40°C
Mobile Phase: H2O/MeOH (47:53)
Flow rate: 1.0mL/min
Detector: 40°C, 3.5Bars, G8

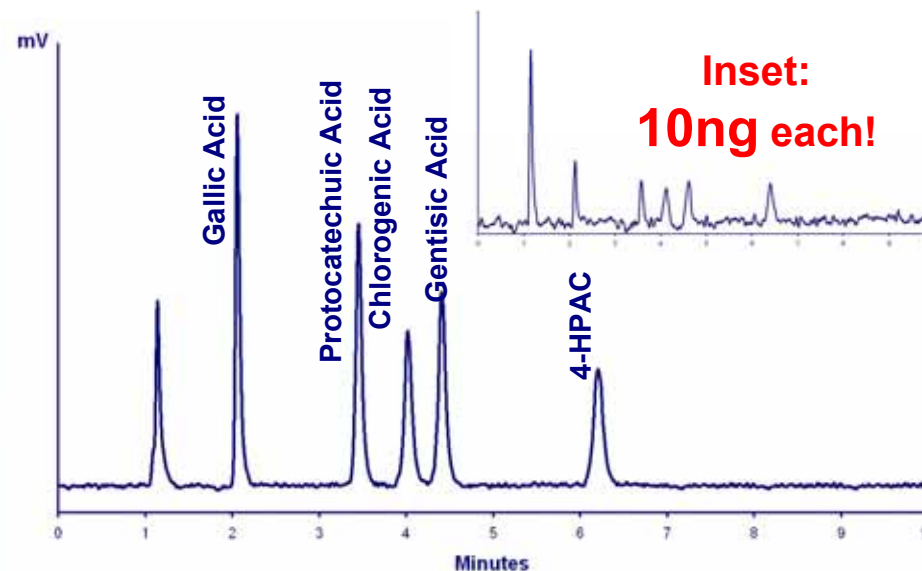
SEDEX 90LT vs. Other Technologies

SEDEX^{LT}ELSD™

HPLC Analysis of Phenolic Acids



Charged Aerosol Detection Technology



SEDEX 90LT

Injection: 10µL (20ppm each)

Column: Stability Basic C18 (3µm, 3.0x150mm), 20°C

Mobile Phase: H₂O/ACN (86:14)

Flow rate: 0.6mL/min

Detector: 40°C, 3.0Bars, G12



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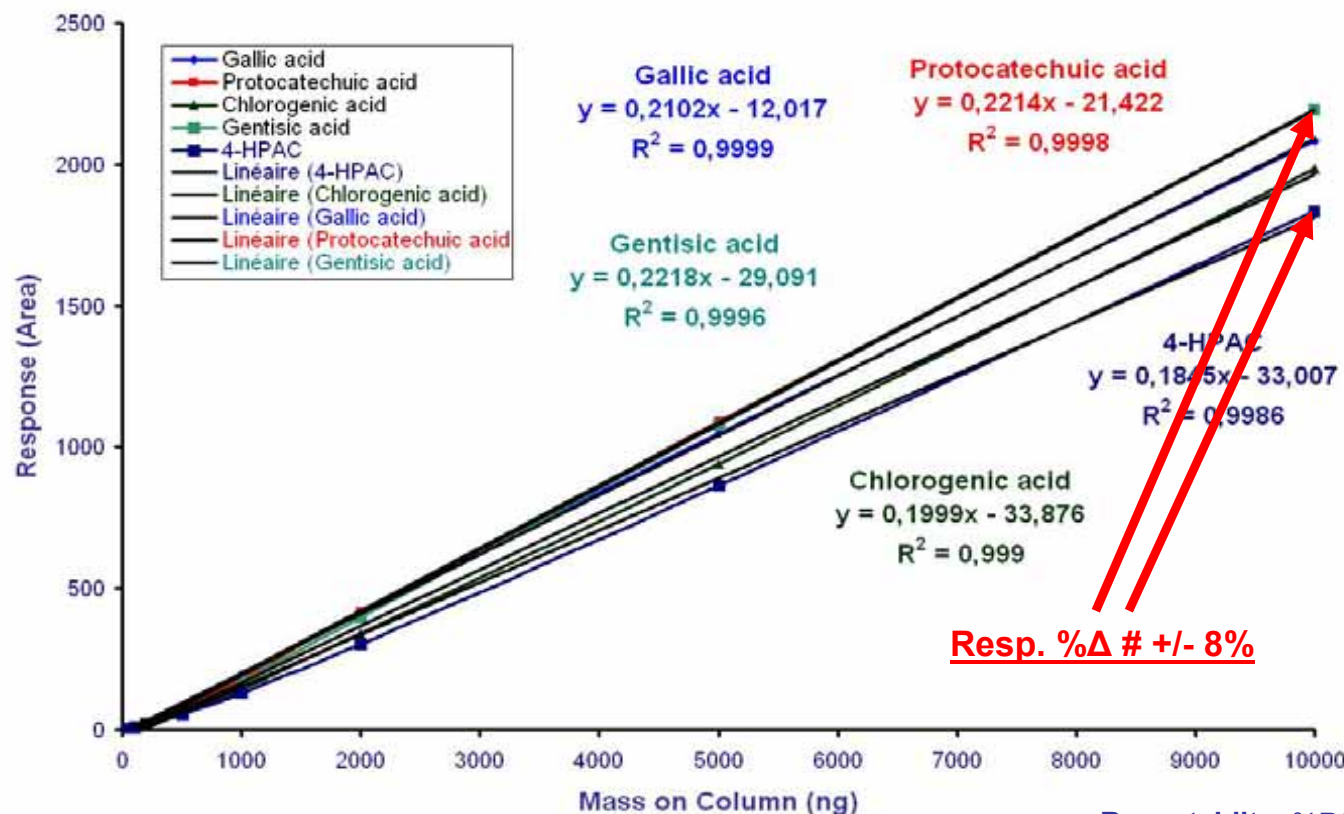
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SEDEX 90LT vs. Other Technologies

SEDEX^{LT}ELSDTM

Linearity: Phenolic acids

(Gallic acid, Protocatechuic acid, Gentisic acid, Chlorogenic acid and 4-HPAC)



Injection: 10μL (From 5ppm to 1000ppm each)
Column: Stability Basic C18 (3μm, 3.0x150mm), 20°C
Mobile Phase: H2O/ACN (86:14)
Flow rate: 0.6mL/min
Detector: 40°C, 3.0Bars, G5

Repeatability: %RSD (n=6) at 200ppm
Gallic acid: **0.6%** ; Protocatechuic acid: **2.2%** ; Chlorogenic acid: **0.6%** ; Gentisic acid: **2.5%** ; 4-HPAC: **1.7%**

SEDEX 90LT



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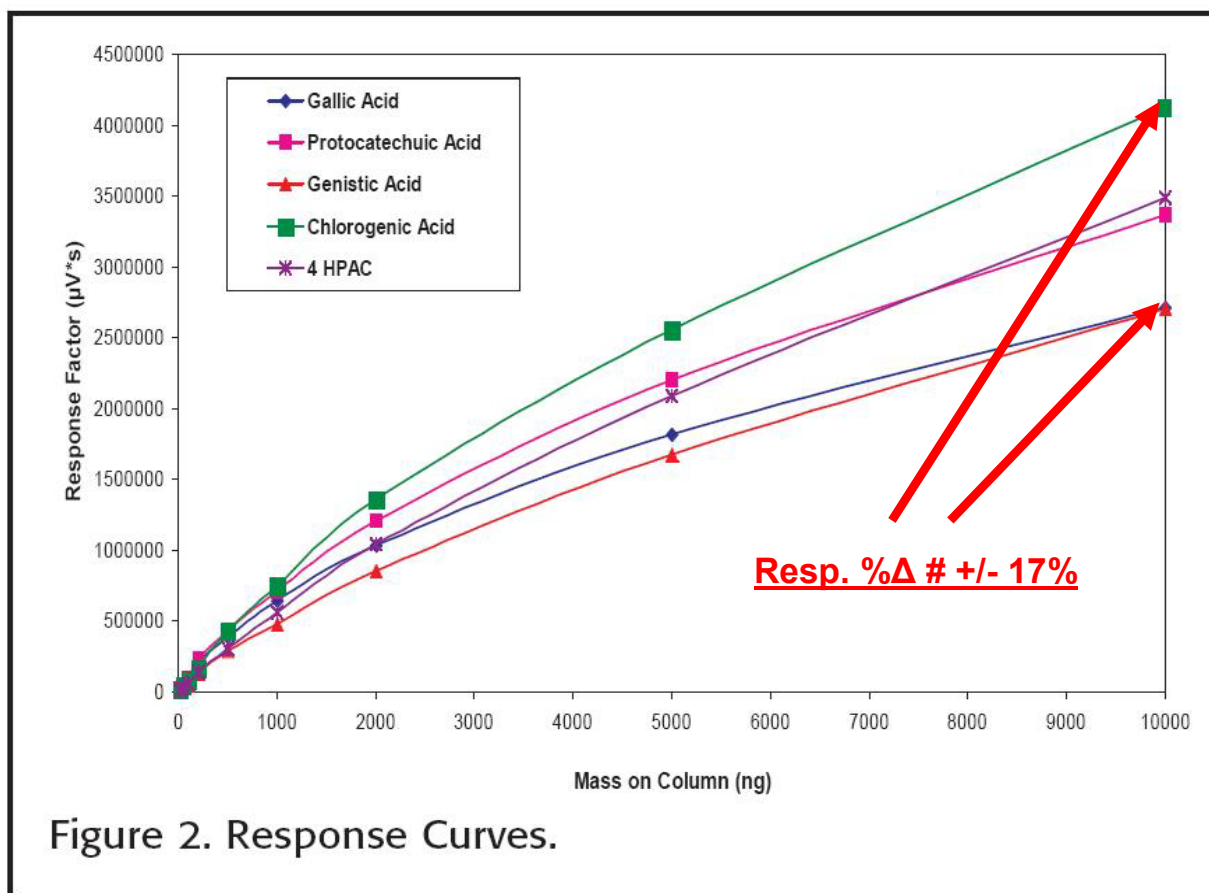
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SEDEX 90LT vs. Other Technologies



Linearity: Phenolic acids

(Gallic acid, Protocatechuic acid, Gentisic acid, Chlorogenic acid and 4-HPAC)



Charged Aerosol Detection Technology

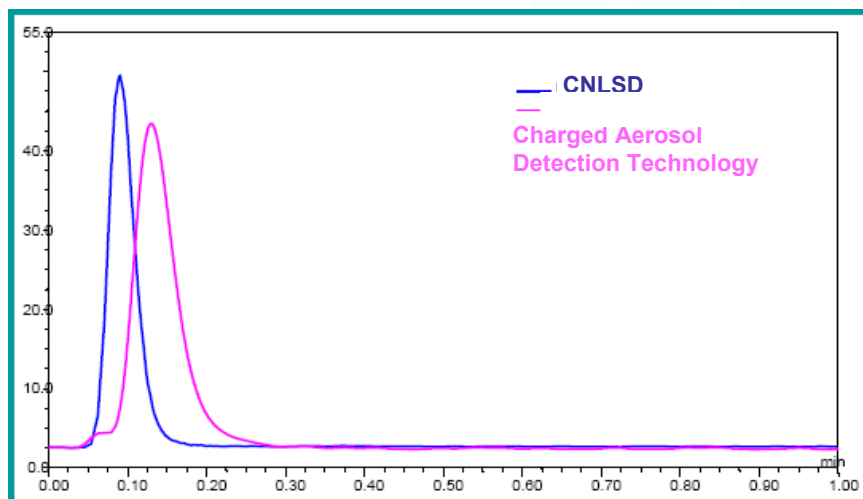


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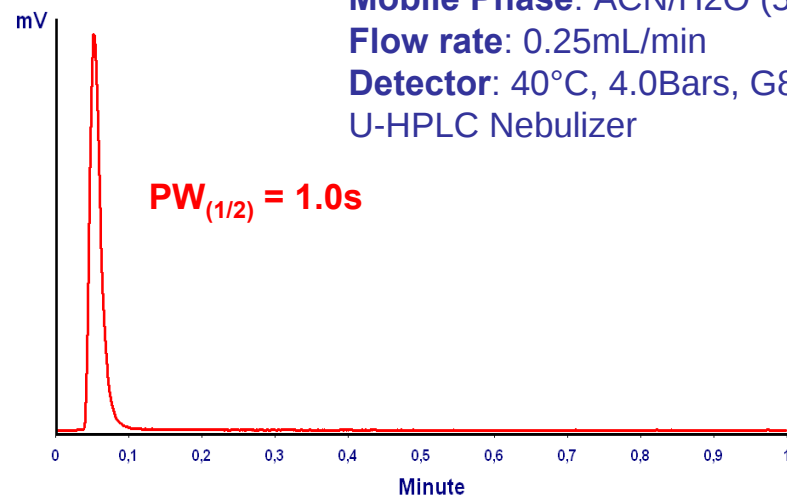
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Efficiency: Peak Width (Hydrocortisone 100ppm)



SEDEX 90LT

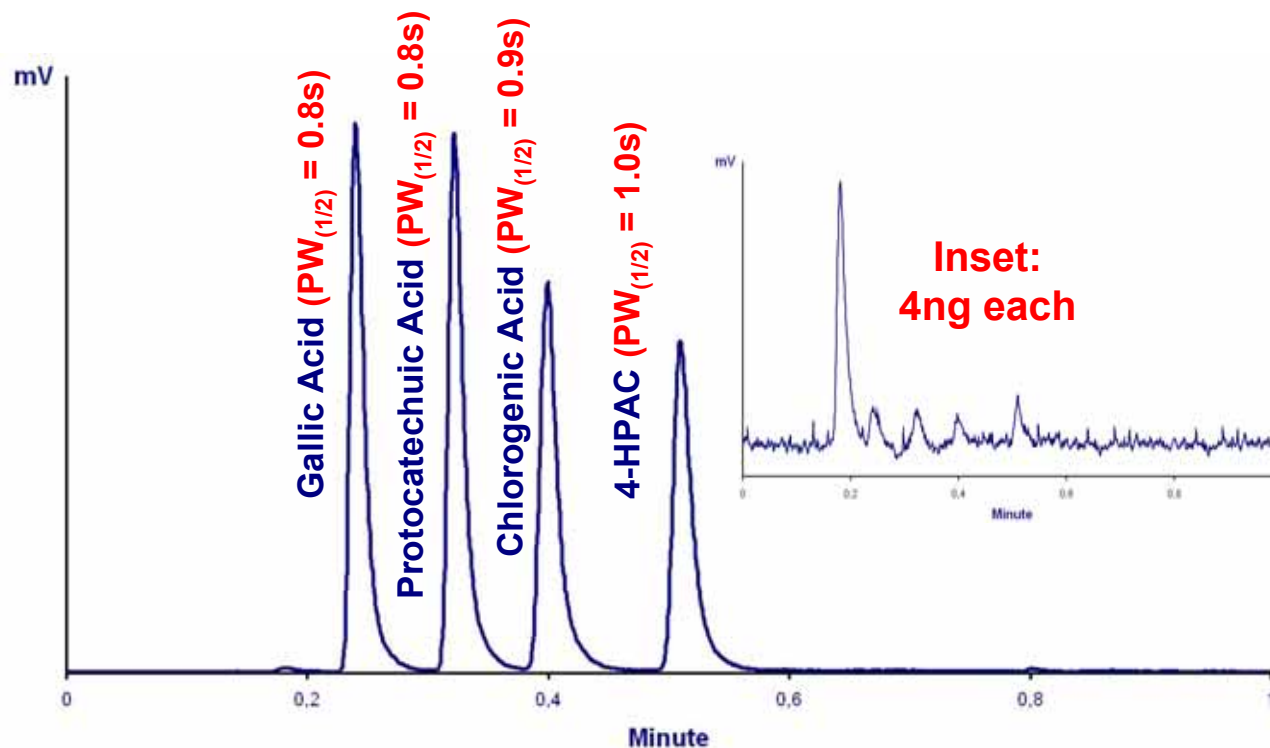


Injection: 1 μ L
Column: No column
Mobile Phase: ACN/H₂O (50:50)
Flow rate: 0.25mL/min
Detector: 40°C, 4.0Bars, G8
U-HPLC Nebulizer

SEDEX 90LT vs. Other Technologies

SEDEX^{LT}-ELSDTM

Efficiency (peak width): Phenolic acid mix
(Gallic acid, Protocatechuic acid, Chlorogenic acid and 4-HPAC)



Injection: 1 μ L (250ppm each)
Column: Zorbax SB-C18 (1.8 μ m, 2.1x50mm), 60°C
Mobile Phase: 50mM Ammonium formate, pH:3/ACN (86:14)
Flow rate: 0.7mL/min
Detector: 37°C, 3.5Bars, G10-12, U-HPLC Nebulizer

SEDEX 90LT



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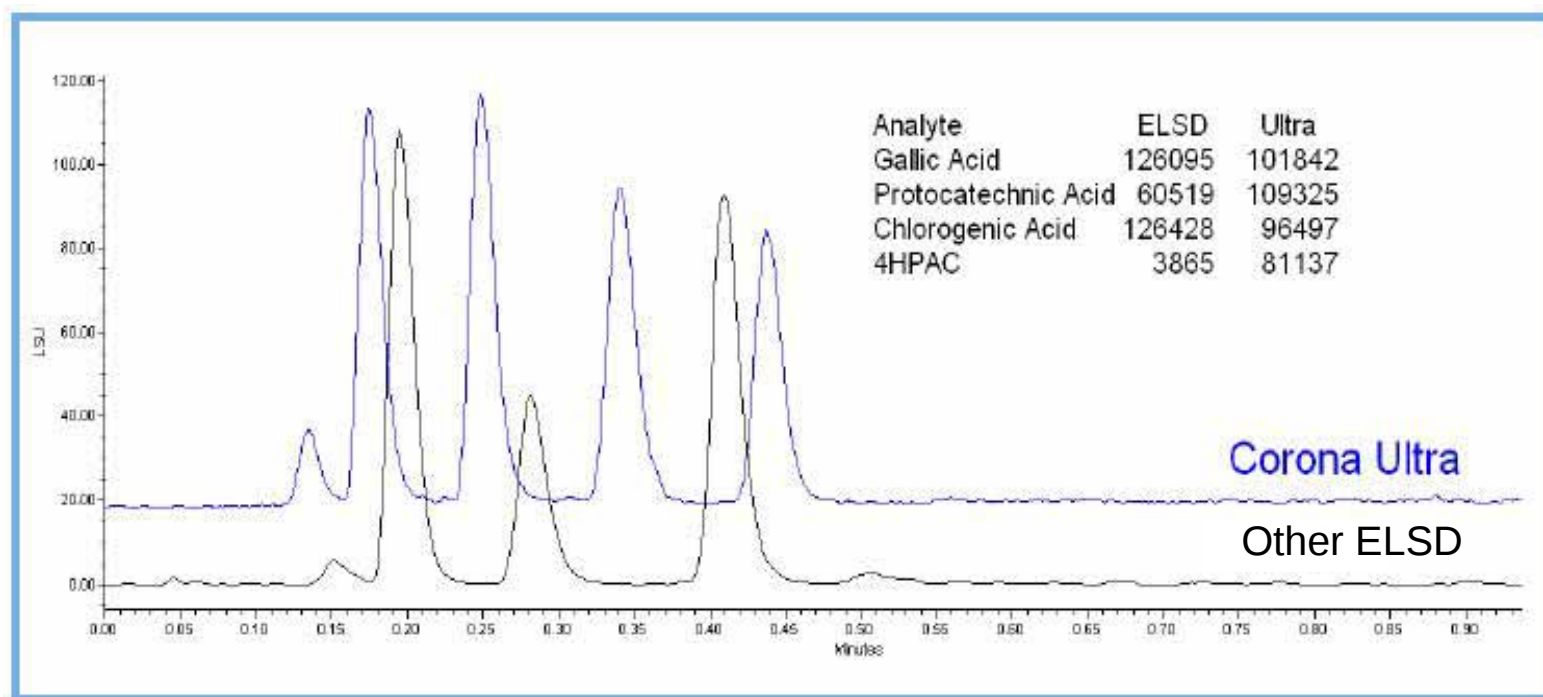
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SEDEX 90LT vs. Other Technologies



U-HPLC Analysis of Phenolic Acids (250ng each on Column) with Corona Ultra and Other ELSD



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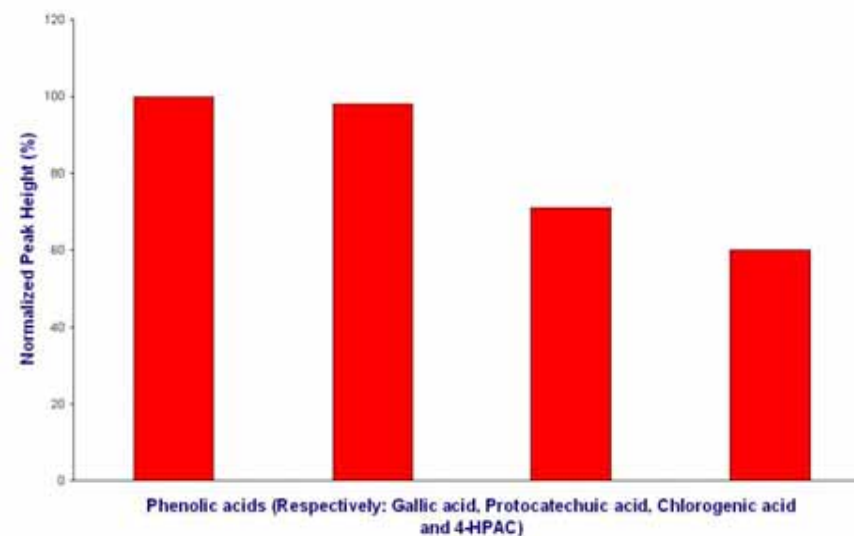
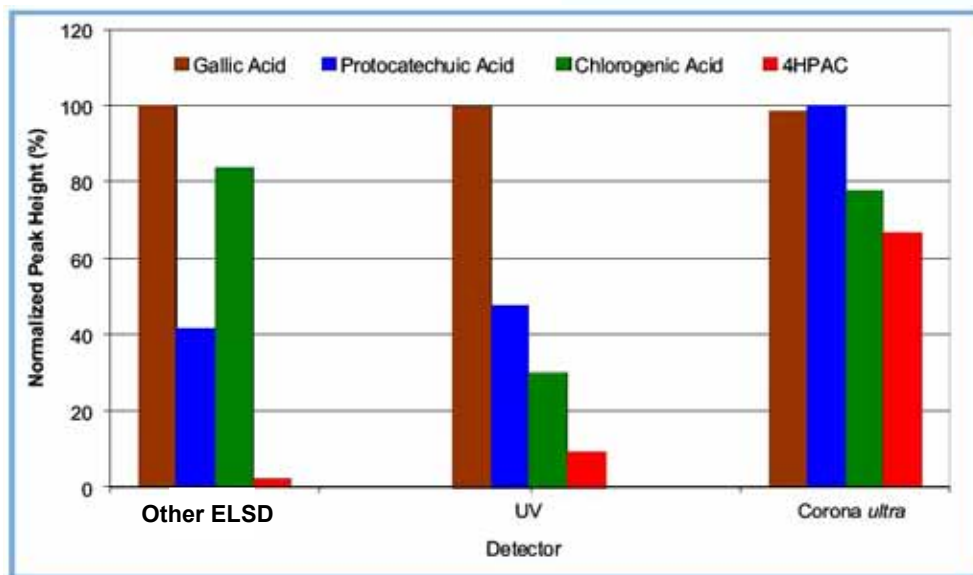
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SEDEX 90LT vs. Other Technologies



Normalized Response for Four Phenolic Acids by U-HPLC



Charged Aerosol Detection Technology,
Optimized for U-HPLC

SEDEX 90LT



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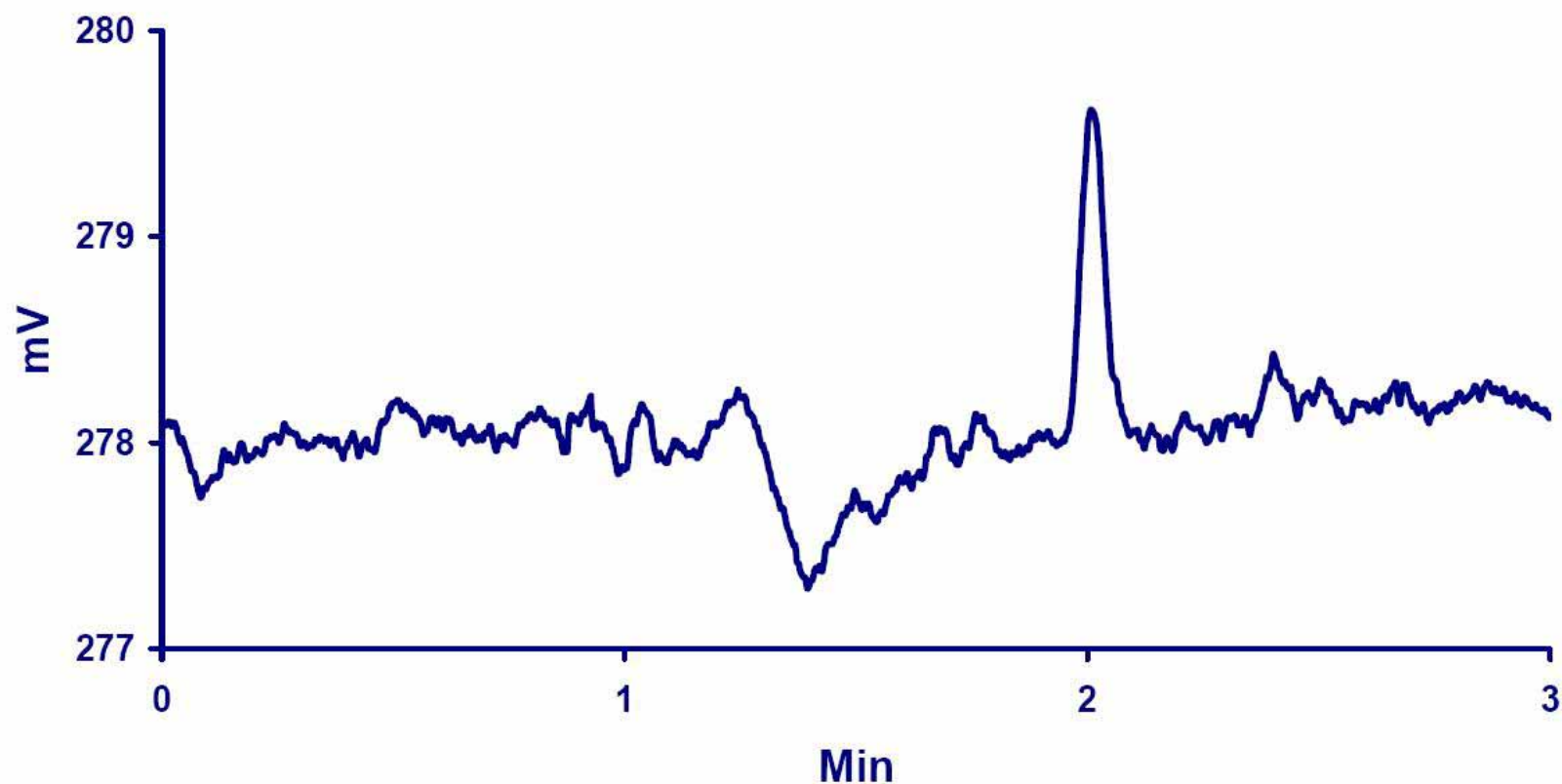
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SEDEX 90LT vs. Other Technologies



Overall Dynamic Range

Hydrocortisone, **5ng** on column (Gain 12)



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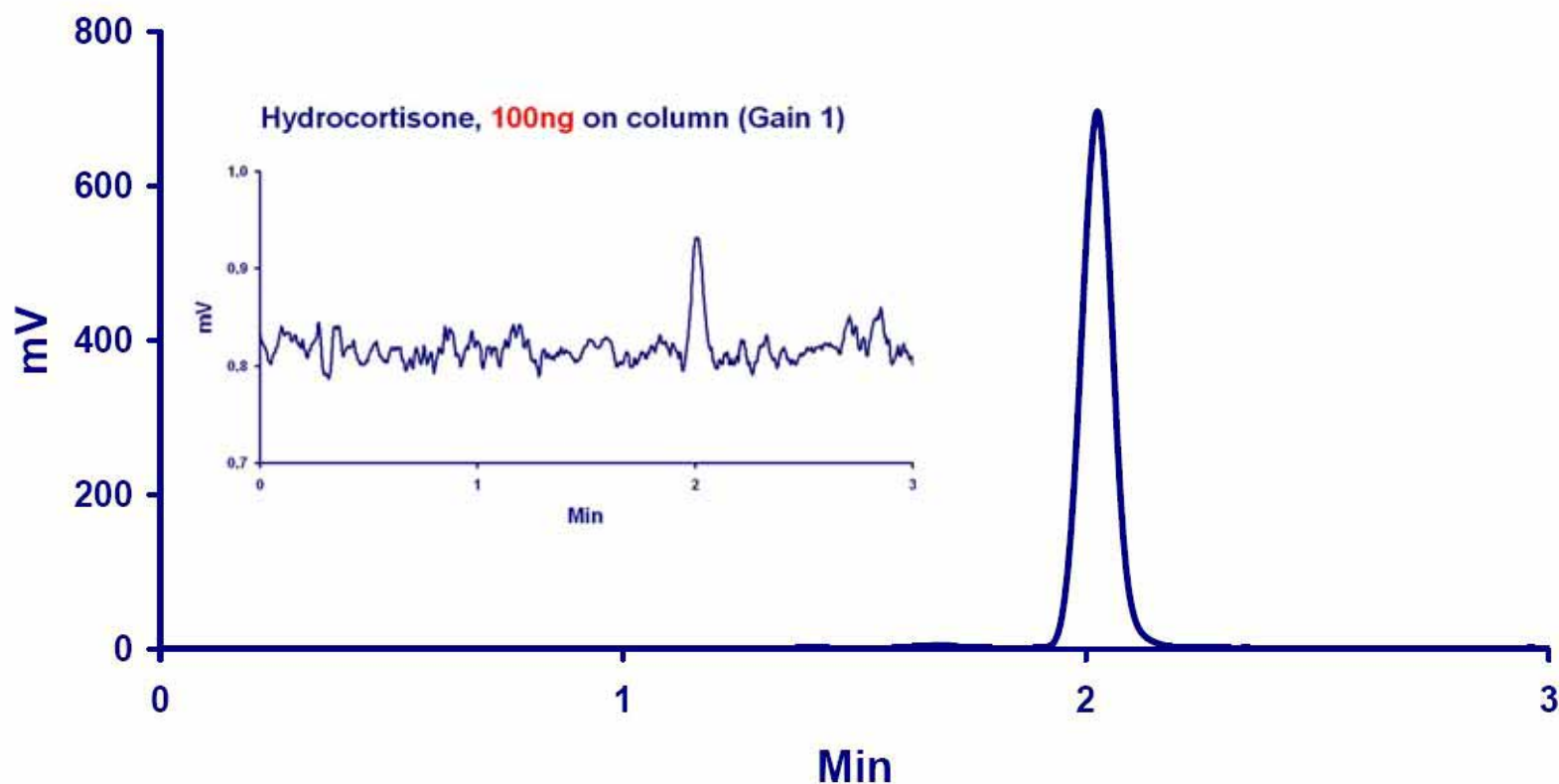
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SEDEX 90LT vs. Other Technologies



Overall Dynamic Range:
Over **Four** Orders of Magnitude!

Hydrocortisone, **200µg** on column (Gain 1)

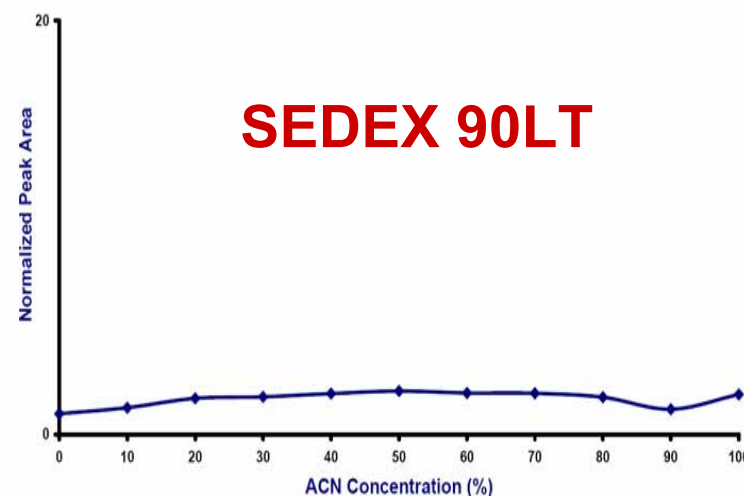
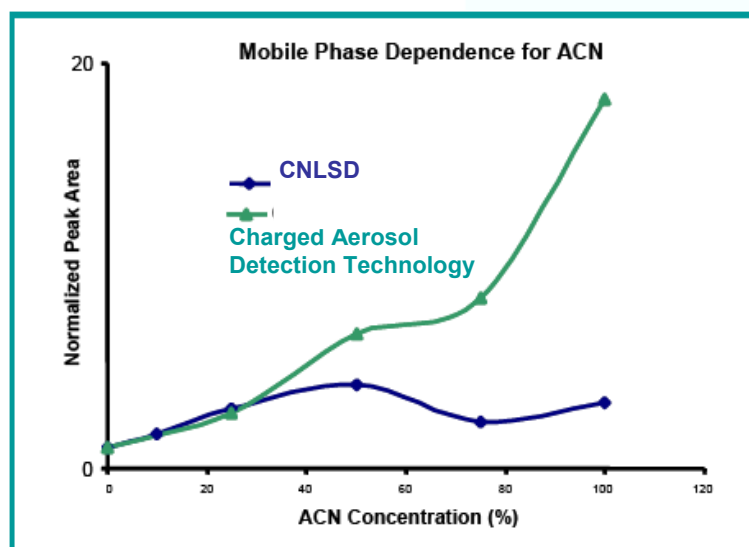


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Solvent Gradient Effect (Hydrocortisone)



Injection: 10 μ L

Column: No column

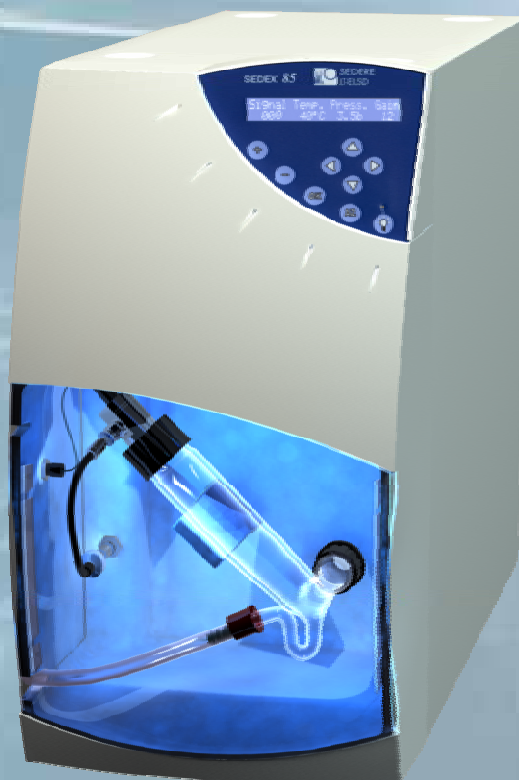
Mobile Phase: ACN in H₂O (0, 10, 20, 30, 40, 50, ..., 100%)

Flow rate: 1.0mL/min

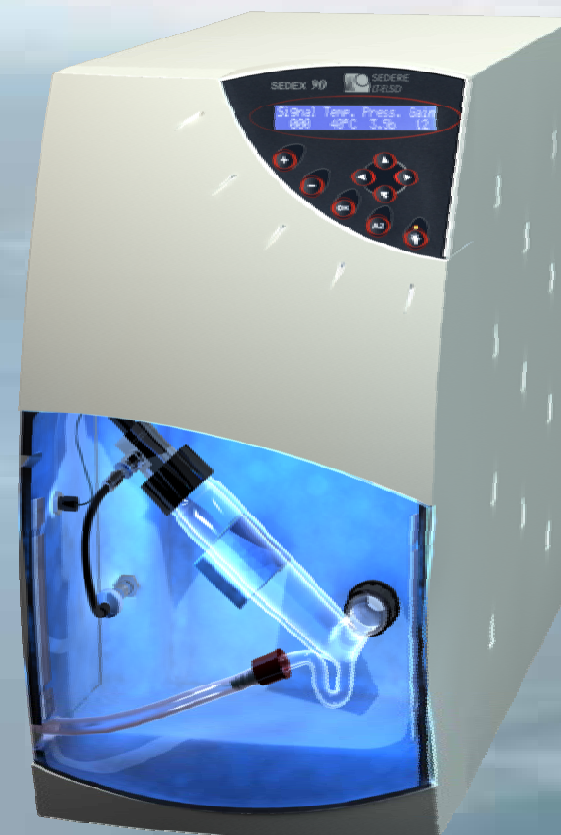
Detector: 40°C, 3.5Bars, G12



Sedex 80LT
The Cost-Effective



Sedex 85LT
The Standard



Sedex 90LT
The Ultimate