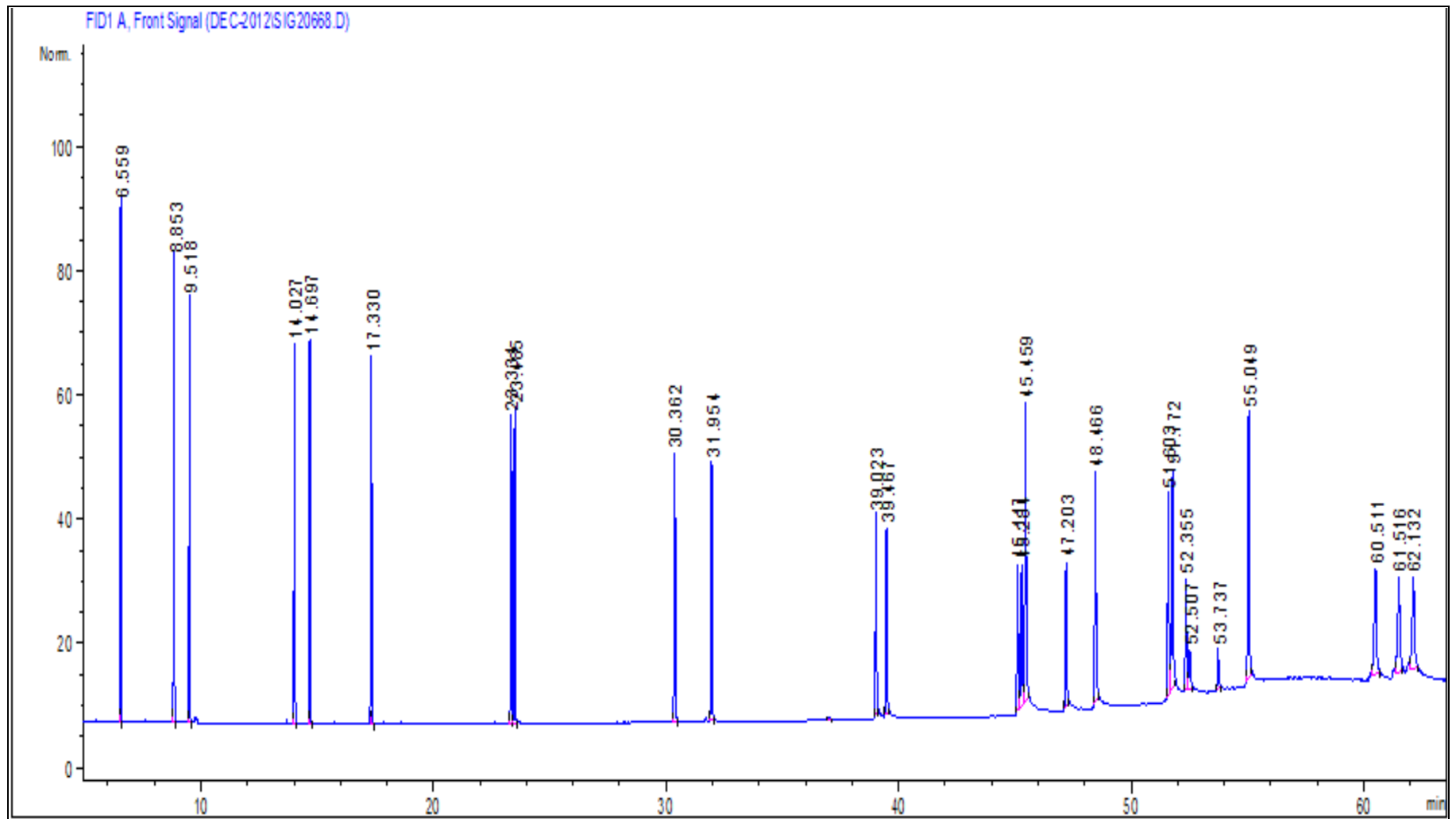


Critical PAH pollutant separation with excellent resolution

Instrumentation Conditions

- GC: Agilent 7890 w/ FID
- Cat no: 7125-3002 30m x 0.25mm x 0.25um
- Oven: 100 °C (1min) 4°C /min to 320 °C 20min (Restek calibration method)
- Carrier: Hydrogen, column flow 1.2ml/min
- Inlet: Split, 275 °C, split 50ml/min
- Detector: FID 350 °C
- Inject volume: 1ul

Chromatogram



Peak Identifications and Resolutions

Peak	Compound	Chinese Name	Retention Time	Resolution
1	Naphthalene	萘	6.56	
2	1-Methylnaphthalene	1-甲基萘	8.85	
3	2-Methylnaphthalene	2-甲基萘	9.52	
4	Acenaphthylene	茈烯	14.03	
5	Acenaphthene	茈	14.70	
6	Fluorene	芴	17.33	
7	Phenanthrene	菲	23.33	
8	Anthracene	蒽	23.48	3.25
9	Fluoranthene	荧蒽	30.36	
10	Pyrene	芘	31.95	
11	Benzo[a]anthracene	苯并[a]蒽	39.02	
12	Chrysene	屈	39.47	
13	Benzo[b]fluoranthene	苯并[b]荧蒽	45.12	

Peak Identifications and Resolutions (continued)

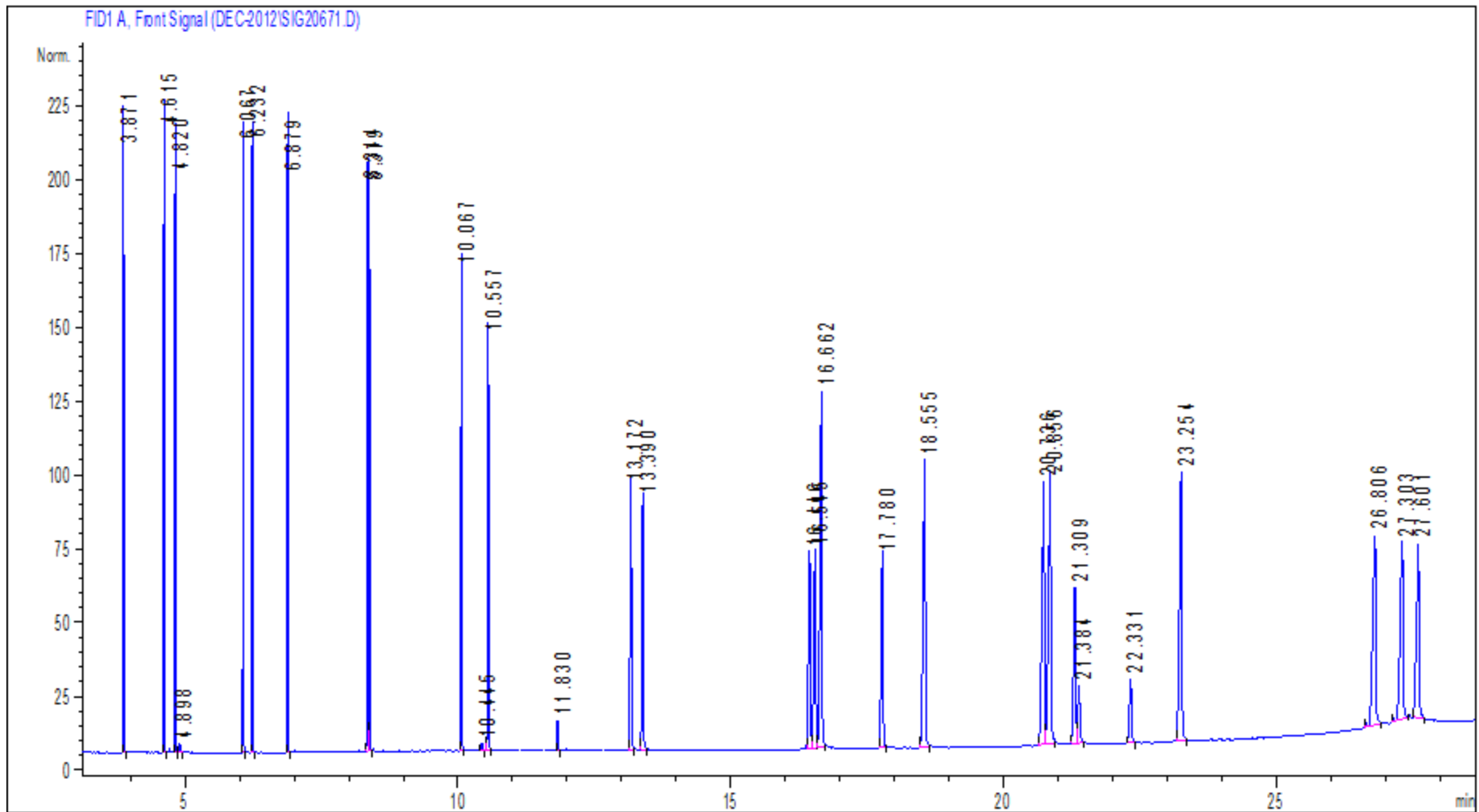
Peak	Compound	Chinese Name	Retention Time	Resolution
14	Benzo[k]fluoranthene	苯并[k]荧蒽	45.28	2.77
15	Benzo[j]fluoranthene	苯并[j]荧蒽	45.46	2.91
16	Benzo[a]pyrene	苯并[a]芘	47.20	
17	3-Methylcholanthrene	3 - 甲基胆	48.47	
18	Dibenzo[a,h]acridine	二苯并[a,h]杂蒽	51.60	
19	Dibenzo[a,j]acridine	二苯并[a,j]丫啶	51.77	2.75
20	Indeno[1,2,3-cd]pyrene	茚并[1,2,3-cd]比	52.35	
21	Dibenz[a,h]anthracene	二苯并[a,h]蒽	52.51	2.42
22	Benzo[ghi]perylene	苯并[g,h,i]花	53.74	
23	7H-Dibenzo[c,g]carbazole	7H-二苯并[c,g]咔唑	55.05	
24	Dibenzo[a,e]pyrene	二苯并[a,e]芘	60.51	
25	Dibenzo[a,i]pyrene	二苯并[a,i]芘	61.52	
26	Dibenzo[a,h]pyrene	二苯并[a,h]芘	62.13	

PAH separation with an optimized temperature program reducing PAH analysis time 40%

Instrumentation Conditions

- GC: Agilent 7890 w/ FID
- Cat no: 7125-3002 30m x 0.25mm x 0.25um
- Oven: 100 °C (1min) 15°C /min to 280 °C 5°C /min 340 °C 10min
- Carrier: Hydrogen, column flow 1.2ml/min
- Inlet: Split, 275 °C, split 50ml/min
- Detector: FID 350 °C
- Inject volume: 1ul

Chromatogram



Peak Identifications and Resolutions

Peak	Compound	Chinese Name	Retention Time	Resolution
1	Naphthalene	萘	3.87	
2	1-Methylnaphthalene	1-甲基萘	4.61	
3	2-Methylnaphthalene	2-甲基萘	4.82	
4	Acenaphthylene	茈烯	6.07	
5	Acenaphthene	茈	6.23	
6	Fluorene	芴	6.88	
7	Phenanthrene	菲	8.34	
8	Anthracene	蒽	8.38	2.23
9	Fluoranthene	荧蒽	10.07	
10	Pyrene	芘	10.56	
11	Benzo[a]anthracene	苯并[a]蒽	13.17	
12	Chrysene	屈	13.39	
13	Benzo[b]fluoranthene	苯并[b]荧蒽	16.45	

Peak Identifications and Resolutions (continued)

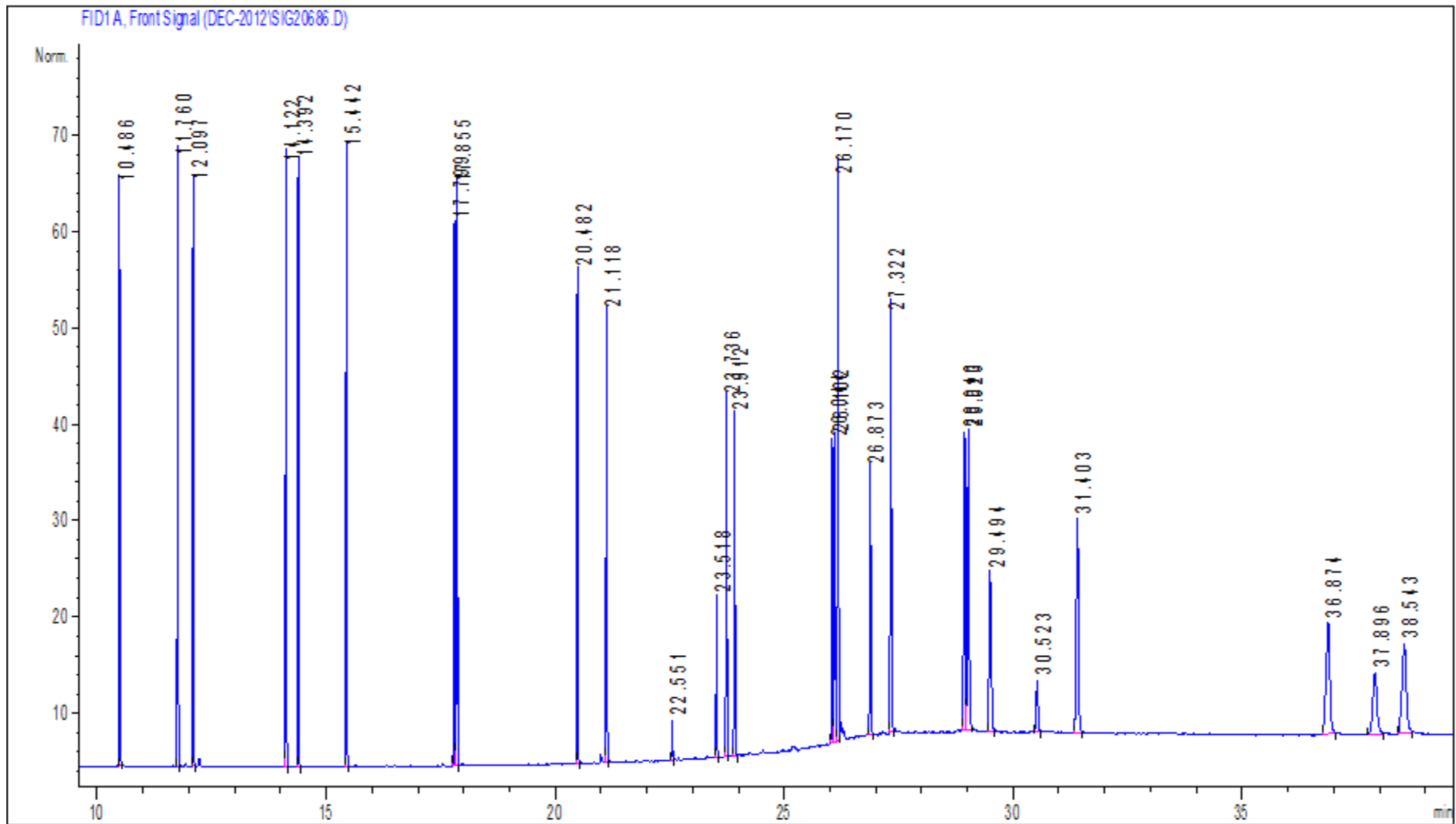
Peak	Compound	Chinese Name	Retention Time	Resolution
14	Benzo[k]fluoranthene	苯并[k]荧蒽	16.55	2.65
15	Benzo[j]fluoranthene	苯并[j]荧蒽	16.66	3.03
16	Benzo[a]pyrene	苯并[a]芘	17.78	
17	3-Methylcholanthrene	3 - 甲基胆	18.56	
18	Dibenzo[a,h]acridine	二苯并[a,h]杂蒽	20.74	
19	Dibenzo[a,j]acridine	二苯并[a,j]丫啶	20.86	2.58
20	Indeno[1,2,3-cd]pyrene	茛并[1,2,3-cd]比	21.31	
21	Dibenz[a,h]anthracene	二苯并[a,h]蒽	21.38	1.81
22	Benzo[ghi]perylene	苯并[g,h,i]花	22.33	
23	7H-Dibenzo[c,g]carbazole	7H-二苯并[c,g]咔唑	23.25	
24	Dibenzo[a,e]pyrene	二苯并[a,e]芘	26.81	
25	Dibenzo[a,i]pyrene	二苯并[a,i]芘	27.30	
26	Dibenzo[a,h]pyrene	二苯并[a,h]芘	27.60	

PAH separation using ZEK 01.4-08 Program with a low resolution (not recommended)

Instrumentation Conditions

- GC: Agilent 7890 w/ FID
- Cat no: 7125-3002 30m x 0.25mm x 0.25um
- Oven: 50 °C (2min) 11°C /min to 320°C 12min (ZEK 01.4-08 program)
- Carrier: Hydrogen, column flow 1.2ml/min
- Inlet: Split, 275 °C, split 60ml/min
- Detector: FID 350 °C
- Inject volume: 1ul

Chromatogram



Peak Identifications and Resolutions

Peak	Compound	Chinese Name	Retention Time	Resolution
1	Naphthalene	萘	10.486	
2	1-Methylnaphthalene	1-甲基萘	11.760	
3	2-Methylnaphthalene	2-甲基萘	12.097	
4	Acenaphthylene	茈烯	14.122	
5	Acenaphthene	茈	14.392	
6	Fluorene	芴	15.442	
7	Phenanthrene	菲	17.799	
8	Anthracene	蒽	17.855	2.40
9	Fluoranthene	荧蒽	20.482	
10	Pyrene	芘	21.118	
11	Benzo[a]anthracene	苯并[a]蒽	23.736	
12	Chrysene	屈	23.912	
13	Benzo[b]fluoranthene	苯并[b]荧蒽	26.044	

Peak Identifications and Resolutions (continued)

Peak	Compound	Chinese Name	Retention Time	Resolution
14	Benzo[k]fluoranthene	苯并[k]荧蒽	26.102	2.32
15	Benzo[j]fluoranthene	苯并[j]荧蒽	26.170	2.75
16	Benzo[a]pyrene	苯并[a]芘	26.873	
17	3-Methylcholanthrene	3 - 甲基胆	27.322	
18	Dibenzo[a,h]acridine	二苯并[a,h]杂蒽	28.940	
19	Dibenzo[a,j]acridine	二苯并[a,j]丫啶	29.023	2.18
20	Indeno[1,2,3-cd]pyrene	茚并[1,2,3-cd]比	29.494	
21	Dibenz[a,h]anthracene	二苯并[a,h]蒽	29.494	0.00*
22	Benzo[ghi]perylene	苯并[g,h,i]芘	30.523	
23	7H-Dibenzo[c,g]carbazole	7H-二苯并[c,g]咔唑	31.403	
24	Dibenzo[a,e]pyrene	二苯并[a,e]芘	36.874	
25	Dibenzo[a,i]pyrene	二苯并[a,i]芘	37.896	
26	Dibenzo[a,h]pyrene	二苯并[a,h]芘	38.543	

* Using this program, Dibenz[a,h]anthracene is co-eluted with Indeno[1,2,3-cd]pyrene.