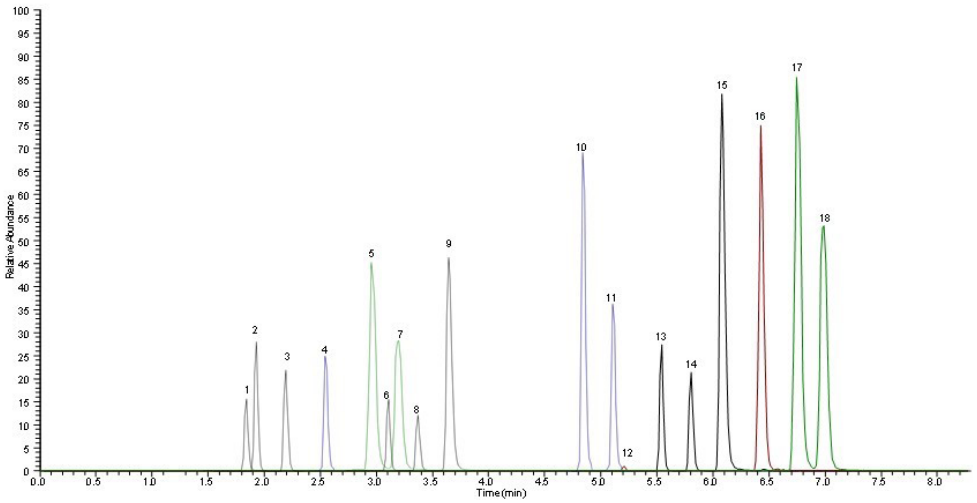
HALO®

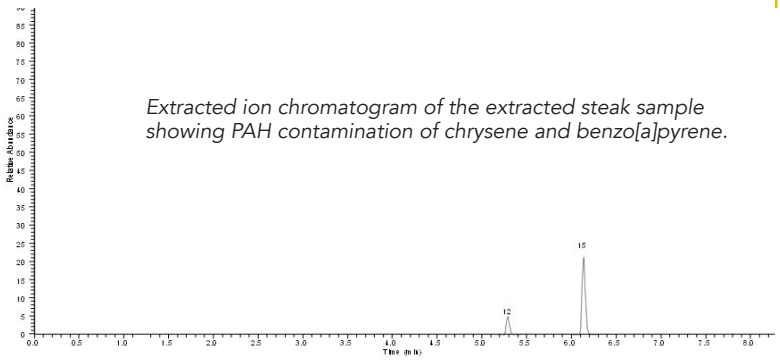
FOOD / BEVERAGE

LCMS of PAHs in Grilled Meat using HALO® PAH

237-P



TIC of a high resolution separation of 18 PAHs in under 7.5 minutes



Extracted ion chromatogram of the extracted steak sample showing PAH contamination of chrysene and benzo[a]pyrene.

PEAK IDENTITIES AND ELUTION ORDER

Peak #	Compound	Precursor Ion	Fragment 1	Fragment 2
1	Naphthalene	128	78	102
2	Acenaphthylene	152	126	151
3	1-Methylnaphthalene	142	89	115
4	2-Methylnaphthalene	142	115	141
5	Acenaphthene	154	126	153
6	Fluorene	166	115	165
7	Phenanthrene	178	151	176
8	Anthracene	178	152	176
9	Fluoranthene	202	150	200

Peak #	Compound	Precursor Ion	Fragment 1	Fragment 2
10	Pyrene	202	150	200
11	Benzo[a]anthracene	228	150	226
12	Chrysene	228	200	226
13	Benzo[b]fluoranthene	252	224	250
14	Benzo[k]fluoranthene	252	224	250
15	Benzo[a]pyrene	252	224	250
16	Dibenzo[a,h]anthracene	278	248	276
17	Benzo[ghi]perylene	276	248	274
18	Indeno[1,2,3-cd]pyrene	276	246	274

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The HALO® PAH column continues in the tradition of HALO® products by offering high resolution separations, in high throughput time frames. 18 PAH compounds with 6 sets of isomeric compounds were able to be quickly and efficiently resolved in under 8 minutes. In addition, the high resolution separation of the HALO® PAH column, enabled chrysene and benzo[a]pyrene to be resolved from a complex meat matrix, enabling quantitation of PAH contamination present in barbequed steak. The concentration of PAHs in the sample, were below those established by the EU, and demonstrates that not only can the HALO® PAH column be used in the stringent regulatory testing of current established methods, but also be relied upon as future regulations dictate the establishment of new methods, requiring lower limits of detection. The HALO® PAH column offers a rugged and reproducible particle design meeting the needs of complex matrix testing. Fused-Core® technology is ideal for PAH analysis in particular, enabling customers to achieve analytical goals of speed, accuracy, and precision LC separations.

TEST CONDITIONS:

Column: HALO 90 Å PAH, 2.7 µm, 2.1 x 100 mm
Part Number: 92842-612
Flow Rate: 0.4 mL/min
Pressure: 289 bar
Column Temperature: 30 °C
Injection Volume: 1 µL
Sample Solvent: Methanol
LC System: Shimadzu Nexera
Mobile Phase **A:** Water/0.1% formic acid
B: Acetonitrile/0.1% formic acid

Gradient:	**Time**	**%B**
	0.0	40
	5.0	100
	8.0	100
	8.01	40

MASS SPECTROMETRY CONDITIONS:

MS System: Thermo Scientific™ Q Exactive™ HF
ESI voltage: 5.5 kV
Heater Temp: 400 °C
Sheath gas: 35 (arbitrary units)
Aux gas: 8 (arbitrary units)
Tube lens voltage: 40 V