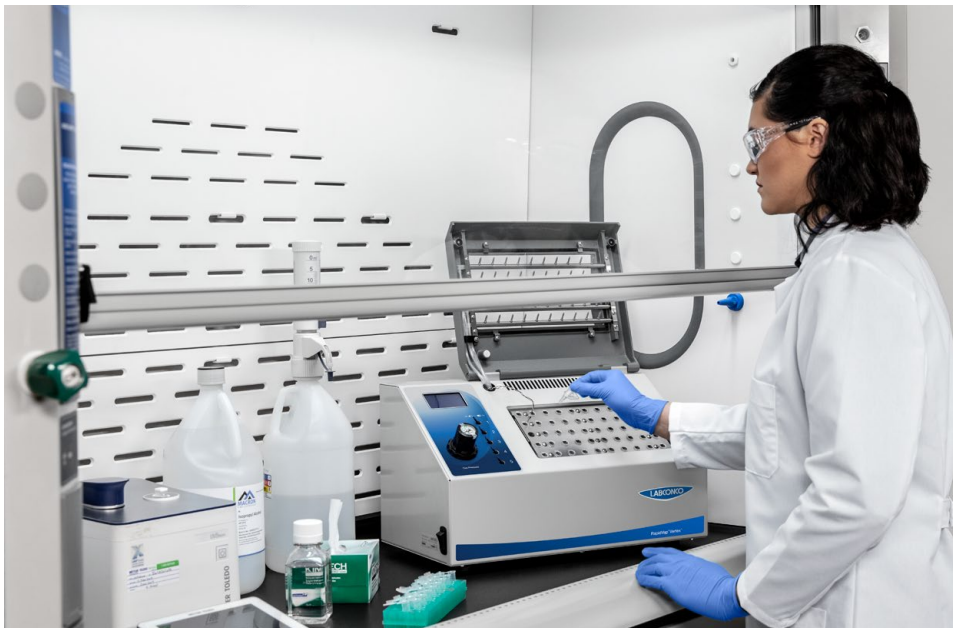
Using RapidVap Vertex Evaporator for Evaporation per US EPA Method 550.1



Protocol:

US EPA Method 550.1 requires an evaporation or concentration step when extracting polyaromatic hydrocarbons from liquid. For this application note, Chemir Analytical Services of Maryland Heights, Mo. used Labconco's RapidVap Vertex Dry Evaporator for the evaporation step of this method. The data presented are compounds from the matrix spike.

Equipment

- RapidVap Vertex Evaporator (7320020) with 40 ml block (7322800)
- 40 ml I-Chem vials with PTFE-lined septa
- Chromatographic grade methylene chloride and acetonitrile
- Agilent 1100 HPLC with Ultraviolet and Fluorescence Detection
- Polyaromatic hydrocarbon standards from Supelco Analytical

Procedure:

40 ml vials were filled with 10.0ml of methylene chloride spiked to the correct concentration of the analytical standard then concentrated down to 1ml. The block preheat and temperature was 40°C with 10 p.s.i. of nitrogen. The 0.5ml was brought to 3ml with acetonitrile and then concentrated to 0.5ml. Three preparations were injected in duplicate and compared to a 1ug/ml standard of polyaromatic hydrocarbons for percent recovery determinations. Table 1 shows the recoveries of the matrix spike. US EPA Method 550.1 was used as a reference.

Table I: Average Recoveries

Compound/Recovery	1	2	3	4	5	6	Average Recovery	%RSD
Acenapthene	76%	76%	77%	78%	81%	80%	78%	2.8
Acenapthylene	75%	76%	77%	77%	80%	81%	78%	2.9
Anthracene	72%	75%	74%	81%	80%	79%	77%	4.8
Benzo(a)anthracene,Chyrsene1	90%	90%	97%	97%	109%	109%	99%	8.5
Benzo(a)pyrene	89%	90%	90%	89%	87%	87%	89%	1.5
Benzo(b)fluoranthene	111%	111%	102%	102%	90%	90%	101%	9.4
Benzo(g,h,i)perylene	92%	94%	93%	91%	91%	89%	92%	1.7
Benzo(k)fluoranthene	90%	90%	90%	90%	88%	89%	90%	1.0
Dibenz(a,h)anthracene	91%	91%	92%	91%	89%	89%	91%	1.2
Fluoranthene	80%	81%	94%	92%	92%	85%	87%	7.3
Fluorene	78%	80%	82%	73%	76%	84%	79%	5.3
Indeno(1,2,3-cd)pyrene2	0%	0%	0%	0%	0%	0%	0%	0.0
Napthalene	74%	75%	77%	78%	79%	79%	77%	2.8
Phenanthrene	79%	80%	80%	81%	83%	82%	81%	1.8
Pyrene	86%	87%	87%	86%	86%	85%	86%	0.8

1Compounds elute together

2Indeno(1,2,3-cd)pyrene was not observed in the standard as well as the matrix spiked samples.

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