



Polycyclic Aromatic Hydrocarbons (PAH) from a Water Matrix

UCT Part Numbers:

ECUNIPAH (2000 mg, unencapped C18, 83 mL cartridge)
Or

EUC1812M15 (2000 mg, unencapped C18, 15 mL cartridge)

CUC181M6 (1000 mg, unencapped C18, 6 mL cartridge)

ECSS25K (anhydrous sodium sulfate)

Polynuclear Aromatic Compounds Recovered in this Method

PAH	CASRN	PAH	CASRN
Acenaphthene	83-32-9	Chrysene	218-01-9
Acenaphthylene	208-96-8	Dibenzo(a,h)anthracene	53-70-3
Anthracene	120-12-7	Fluoranthene	206-44-0
Benzo(a)anthracene	56-55-3	Fluorene	86-73-7
Benzo(a)pyrene	50-32-8	Indeno(1,2,3-cd)pyrene	193-39-5
Benzo(b)fluoranthene	205-99-2	Naphthalene	91-20-3
Benzo(g,h,i)perylene	191-24-2	Phenanthrene	85-01-8
Benzo(k)fluoranthene	207-08-9	Pyrene	129-00-0

1. Condition Cartridge

- Place **ECUNIPAH** cartridge(s) on the vacuum manifold*
- With vacuum turn off add 10 mL of methylene chloride to the cartridge
- Let it soak for 1 minute
- Turn on vacuum and draw through to waste
- Add 10 mL of methanol to the cartridge
- Let it soak for 1 minute
- Draw the methanol to the level of the frit
- Add 10 mL of deionized water to the cartridge
- Let it soak for 1 minute
- Draw most of the water to waste but do not allow the sorbent to dry

Note: Do not let the cartridge go dry after addition of methanol otherwise repeat starting at step 1. e)

2. Sample Addition

- a) Add surrogates to the sample
- b) Shake
- c) Add the sample to the cartridge under vacuum. Draw the sample through the cartridge in 20 – 30 minutes (30 – 50 ml/min)
- d) Allow the cartridge to dry under full vacuum for 10 minutes**

Optional: Before proceeding to the drying step use UCT Zero-Blank™ Filter (**ECBLANK**) to reduce potential background contamination

3. Extract Elution

- a) Place a collection tube or vial in the vacuum manifold
- b) Rinse sample bottle with 10 mL of methylene chloride
- c) Add the methylene chloride rinse to the cartridge
- d) Allow to soak for 1 minute then draw through
- e) Repeat this procedure 3 more times using 10 mL aliquots of methylene chloride
- f) Dry the extract by passing it through 10-20 grams of **ECSS25K** anhydrous sodium sulfate pre-rinsed with methylene chloride
- g) Thoroughly rinse the collection device with methylene chloride
- h) Add the methylene chloride rinse to the sodium sulfate and collect

4. Concentration and Analysis

- a) Using a standard analytical evaporator with gentle N₂ flow and low temperature (40° C), carefully concentrate the extract to a final volume for GC/MS analysis.
- b) Solvent exchange into acetonitrile and bring to a 1 ml final volume for HPLC analysis
- c) Sample is now ready for analysis

Note: Most analysis errors are caused by poor concentration technique. Do not concentrate below 0.5 mL as low recoveries may result

*The ENVIRO-CLEAN® Universal PAH cartridge can be used on standard disk manifolds (#EUCTVAC6) (with adapter part # EUCTADP). The cartridge is designed to fit Horizon 4790 automated extraction systems or J.T. Baker manifold with the use of an adaptor (ECBMADP).

**Faster drying results can be obtained by removing the cartridge during drying and shaking or tapping the excess moisture from the bottom of the cartridge. Drying times are approximate. Do not over dry as low recoveries may result.