ENVIRO

UCT

# EPA METHOD 1664 A&B

n-Hexane Extractable Material


## OIL & GREASE XF

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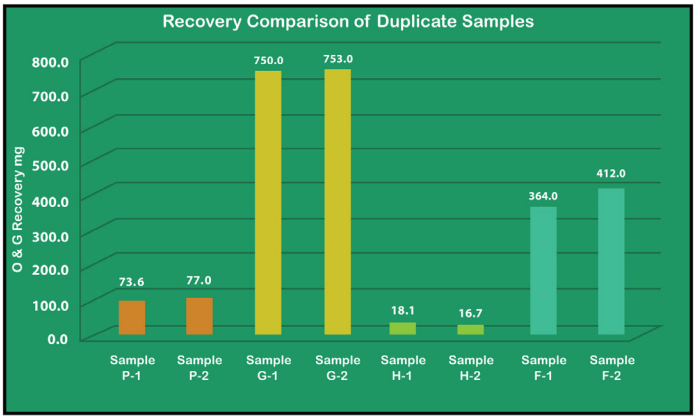
**The UCT ECUNIOGXF** solid-phase extraction cartridge provides a higher level of performance for (HEM) Oil & Grease Analysis. The unique filter design offers superior flow, and higher mass retention, with the dirtiest samples.

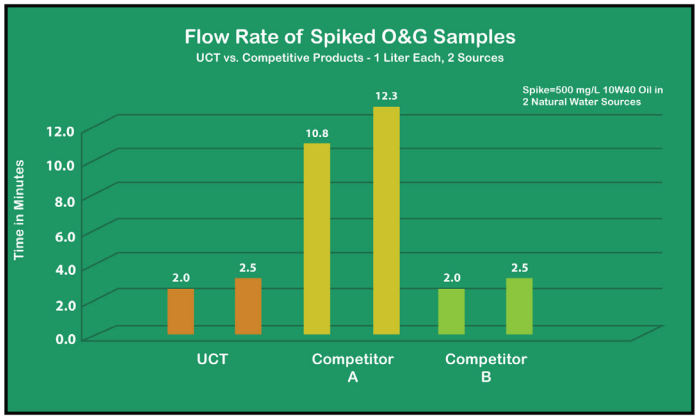
## Product Benefits

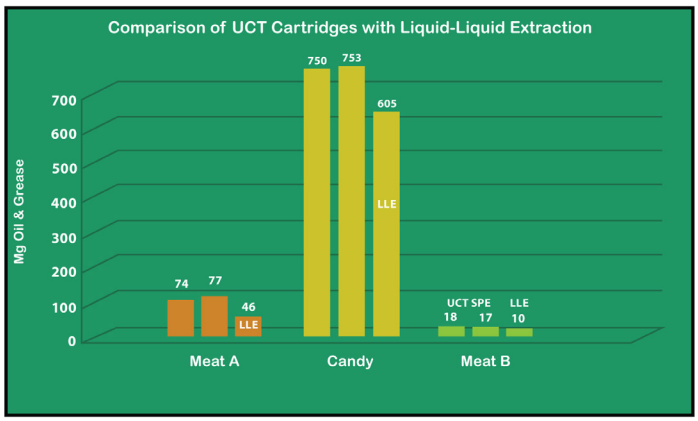
- Real SPE, not just mechanical filter capture
- The highest capture capacity, 3.0 grams/cartridge
- Faster flow rates with high suspended solids
- Multilayer, multimedia prefilter design
- Reduced solvent usage compared to separatory funnels
- No phase separation problems (no emulsions)
- Excellent analytical reproducibility (MDL 1.66 mg/L)

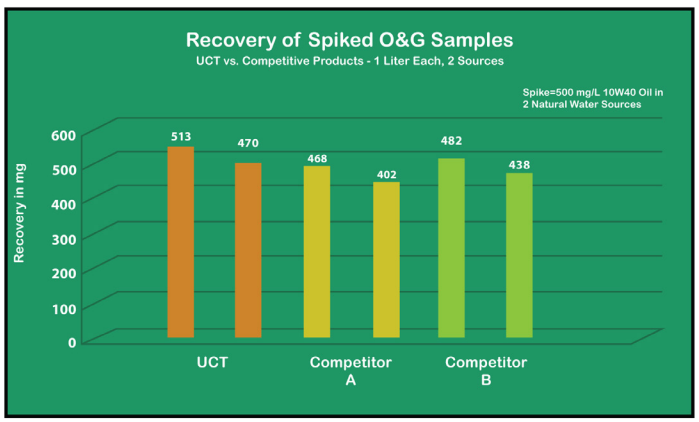
## Product Features

- Polypropylene cartridge design
- Works with automated extractor systems, disk manifolds, glass block manifolds, and HydraFlow®




The UCT cartridge shows the highest analyte recovery along with the fastest flow rate when compared to leading competitive products

# OIL & GREASE XF

**Instructions** for Using **EPA Method 1664 A&B:** n-Hexane Extractable Material (HEM; Oil and Grease)

## UCT Enviro-Clean® part numbers:

**ECUCTVAC6 - 6-Station Vacuum Manifold**
**ECROCKER400 - Rocker 400 Vacuum Pump 110 volt**
**ECUCTTRAP20 - 20L Manifold Trap**
**ECUCTADP - Glass Cartridge Adaptor**
**ECUNIBHD - Bottle Holder**
**ECUNIOGXF - Universal Oil & Grease XF 2000mg/83mL**
**ECSS25K - Anhydrous Sodium Sulfate 25kg**

## Procedure

### 1) Assemble

a) Connect a 6-station vacuum manifold **(ECUCTVAC6)** to a 20-L manifold trap **(ECUCTTRAP20)**, and attach the trap to a vacuum pump **(ECROCKER400)**
b) Attach the glass adapters **(ECUCTADP)** onto the manifold
c) Connect the bottle holders **(ECUNIBHD)** to the top of the SPE cartridges **(ECUNIOGXF)**, and attach the cartridges to the glass adaptors on the manifold

### 2) Prepare the Water Sample

a) Adjust the pH of the sample to ≤ 2 by adding 6N HCl or $H_2SO_4$.
**b) A pH above 2 will result in low recoveries**
c) Do not add more acid if it was added in the field unless the pH > 2

**Note:** Wear gloves or skin oils will affect the weight.

### 3) Condition the Cartridge

a) Rinse the sides of the cartridge and bottle holder with 10 mL of n-hexane
b) Allow the cartridge to soak for 4 min.
c) Draw the hexane through the cartridge using full vacuum pressure for 1 min, then release the vacuum
d) Slowly draw 10 mL of methanol through the cartridge, leaving a thin layer on the cartridge frit
e) Add about 50 mL of water to the cartridge
f) Draw the water through the cartridge to waste leaving the sorbent wet
g) Do not let the sorbent go dry

### 4) Sample Addition

a) Load the sample bottle onto the bottle holder
b) Draw the sample through the cartridge under medium vacuum pressure
c) Do not exceed 250 mL/min. for optimum recoveries
d) Increase the vacuum pressure if needed
e) After the sample has passed through the cartridge, turn on full vacuum pressure to dry the cartridge
f) Add a layer of sodium sulfate to the top of the cartridge to aid the drying process
g) Remove the cartridge from the manifold and “tap” it to dislodge any water drops
h) Continue drying the cartridge for 10 minutes

### 5) Extract Elution

a) Insert an extract collection vial into the manifold
b) Rinse the sample bottle with 10 mL of n-hexane
c) Add the hexane to the cartridge
d) Allow the hexane to soak in the cartridge for 5 minutes
e) A slow drop of hexane is okay
f) Turn on the vacuum and draw the hexane into the collection vial (Do not splash the hexane in the vial)
g) Repeat steps b) through f) 2 more times
h) Add another 5 mL of hexane to the cartridge while rinsing the bottle holder
i) Soak the cartridge for 5 minutes
j) Draw the solvent through the cartridge and collect it

### 6) Dry the Extract

a) Pour the extract through sodium sulfate to remove any water
b) Phase separation paper is acceptable, **but do not use filter paper**
c) Allow the extract to drain into a tared vessel for weighing
d) Rinse the collection vial with hexane and use this hexane to rinse the sodium sulfate (poor rinsing can result in low recovery)
e) Collect all of the extract

### 7) Gravimetric Analysis

a) Carefully evaporate the extract until it reaches dryness
b) **Overdrying can result in low recoveries**
c) **Exceeding 70ºC during the drying process will result in low recoveries**
d) Allow the dried extract to cool to room temperature in a desiccator before weighing
e) Record the weight difference and report it as mg/L of HEM

**Notes:**

a) If the sample contains fine particulates, use a small plug of glass wool in the cartridge for additional filtration
b) Rinsing the glass wool with hexane is necessary during the extraction process
c) Stearic acid must be in solution when spiked. Stearic acid crystals in the spiking solution will cause low recoveries. Sonicate or shake the spiking solution until the crystals dissolve.
d) HCl will lose strength over time due to evaporation. Sulfuric acid is a good option.
e) Any residue remaining in the sample bottle or cartridge after the extraction process is not HEM

**For Method 1664 updates see:**
http://www.epa.gov/waterscience/methods/

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SPECIAL PRICING
We offer special pricing for volume purchases and standing orders. These discounts apply to bonded phase extraction column purchases only. Please call a sales representative for more information on special pricing qualifications.

RETURN POLICY
Our Quality Manager will handle all returns. Before returning merchandise, please call to obtain a return authorization number from the quality manager. We will need to know the reason for the return, date of purchase, purchase order number and invoice number in order to issue a return authorization number. Return merchandise must be received before a credit can be issued. Returns will not be accepted after 90 days. A restocking fee of 25% of the price paid, or a minimum of $25.00 (whichever is greater) will be charged on all returns.

WARRANTY
All products manufactured by UCT are guaranteed against defects in materials and workmanship for a period of 90 days after shipment. UCT will replace any items that prove to be defective during this time period. The exclusive remedy requires the end user to first advise UCT of the defective product by phone or in writing and must include order number, the lot number and the shipping date.

To initiate this action, photographs of the product, including packaging and labeling of the containers, must be submitted to the UCT Representative for approval. With approval a return authorization can be initiated, and must be received within 30 days. Once the materials arrive at UCT a further inspection of the materials must be completed and accepted by our Quality Manager prior to further action of credits or replacement. UCT's total liability is limited to the replacement cost of UCT products.

This warranty does not apply to damage resulting from misuse.

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