



Solid Phase Extraction of Oil & Grease from Water

using ASPEC™ C18 cartridges

Solid Phase Extraction Conditions

Cartridge Type	ASPEC C18 Reverse Phase (p/n 54350519 – 54350524)
Sample Preparation	<ol style="list-style-type: none">1. Filter the sample if necessary.2. Adjust the sample pH to 2 (Hydrochloric acid is recommended).3. Add alcohol to the water sample. (Methanol or isopropanol generally works well at 5–25 mL of alcohol in 200 mL of water sample.)4. Homogenize the sample by stirring.
Solid Phase Extraction Method	<ol style="list-style-type: none">1. Column Conditioning: Use 2x the column volume of methanol and 2x the column volume of HPLC-grade (High Pressure Liquid Chromatography) water @ 2–4 mL/min flow rate. Do not dry the cartridge.2. Sample Loading: Load the prepared sample directly on top of the cartridge and use the same flow rate as the cartridge volume (1 mL cartridge = 1 mL/min, 3 mL cartridge = 3 mL/min, 6 mL cartridge = 6 mL/min).3. Washing: Use 2x of 10 mL of HPLC-grade water @ 1–2 mL/min ; 20 mL total wash volume. Then dry the cartridge under vacuum for at least 5 minutes.4. Analyte Elution: Use 10 mL of dichloromethane @ 1 mL/min.5. Sample Reconstitution: If the sample is too dilute, evaporation may be required until an adequate concentration is achieved before analysis.

The USEPA has set limits for the amount of contaminants, in produced water, including oil and grease. This method outlines the use of the Gilson ASPEC C18 solid phase extraction cartridges for separating oil and grease from water. The sample preparation technique used was based on the hydrophobic retention of the sorbent for interfering components. The oil or grease sample was pre-treated through filtration (if necessary), adjustment of the sample pH to 2 using hydrochloric acid, the addition of 5–25 mL of alcohol (generally methanol or isopropanol) to a 200 mL water sample, and homogenization by stirring. Sample analysis can be performed using LC-MS (Liquid Chromatography-Mass Spectrophotometry) or GC-MS (Gas Chromatography-Mass Spectrophotometry).

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