SiliCycle® suggested Solid-Phase Extraction method: Extraction of Oil and Grease from water

We describe here a method for the extraction of Oil and Grease from water samples using SiliCycle® **Silia*Prep*™ C18** SPE cartridges. This technique is based on hydrophobic retention of the sorbent for the interfering components. Analysis of the cleaned sample can be done using analytical technique LC-MS or GC-MS.

This is a recommended sample preparation method, however this method has not been verified in SiliCycle laboratories but is based on methods used with similar matrices and analytes. Therefore, before trying the procedure directly on the matrix, you should first develop a procedure using pure solvent containing the analyte. You will find below, tips for the choice of solvent that you should use to establish your SPE method development:

EXTRACTION PROCEDURE

SPE Cartridge type:	**Silia*Prep*™ C18 (17%) (PN: SPE-R30230B-06S)** **Note**: Consult SiliCycle® catalog for the choice of cartridge volume and sorbent bed weight available and adjust the solvent quantity for each step
Analyte structure:	**Oil and Grease**
Sample pre-treatment:	**Filter the sample if necessary** **Adjust the sample pH to 2 (used Hydrochloric Acid)** **Add alcohol to the water sample** - **Alcohol**: generally methanol or isopropanol - **Volume**: 5-25 mL of alcohol in 200 mL of water sample **Homogenise the sample by stirring**
Solid-Phase Extraction method using Silia*Prep*™ C18:	**Column conditioning step** 1) 2 x column volume of **methanol** **2)** 2 x column volume of **water** (HPLC grade) - **Usual flow rate**: 2-4 mL/min - Do not dry the cartridge for optimal extraction efficiency **Sample loading step** - Load directly the prepared sample on the top of the cartridge - **Usual flow rate**: same rate as the cartridge volume ⇒ 1 mL SPE Cartridge : 1 mL/min ⇒ 3 mL SPE Cartridge : 3 mL/min ⇒ 6 mL SPE Cartridge : 6 mL/min, etc. **Washing step** 1) 2 x 10 mL of **water** (HPLC grade) - **Usual flow rate**: 1-2 mL/min - Dry under vacuum the cartridge after the washing step (at least 5 min).

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Solid-Phase Extraction method using Silia*Prep*™ C18:	**Analyte elution step** 1) minimum volume of dichloromethane (~10 mL) Usual flow rate: 1 mL/min **Note**: A higher quantity of dichloromethane can be used but do not use more than one column volume. **Sample reconstitution step** If sample is too much diluted, solvent evaporation may be required until adequate concentration before the analysis.
Analytical method:	Related to the application (generally LC-MS or GC-MS)
General comments:	For organic matrix, **Silia*Prep*™ C18** non-endcapped sorbent can be used instead of endcapped one. Note that each sample matrix is different and the interferences concentration is not constant, so it may be necessary to adjust the solvent volume for each step and/or the solvent strength for optimal results.