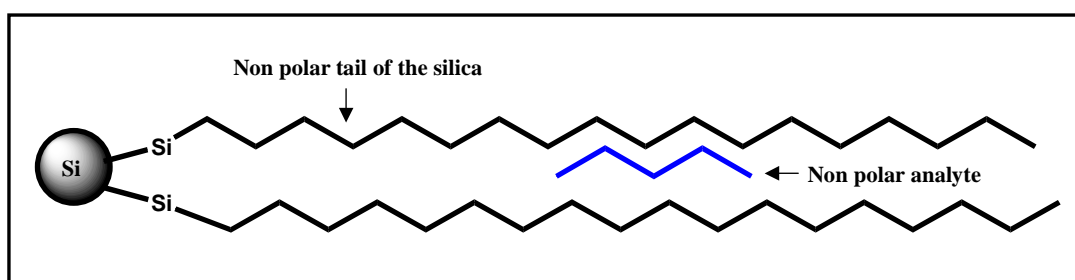


## Suggested Solid Phase Extraction Method using SiliCycle® SiliaPrep™ Reversed-Phase




Reversed-Phase silica gels, (also called RP) are typically used for the extraction of polar or hydrophobic analytes from various matrix composition (aqueous, organic or biologic sample). Most of the time, RP silica gels are constituted of hydrocarbon chains that confer the non-polar character to the sorbent. Variation in the chain length will provide silica gel with different polarities, so different analyte retention strengths. This retention mechanism of that type of silica is based on Van-der-Waals forces between the phase on the silica gel and organic compounds. However, almost all organic analytes present some degree of hydrophobicity, so the reversed-phase extraction is non-specific. That is why you need to optimize adequately your experimental conditions to make sure that the sorbent retains the right compounds.






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:

*\* Explanation of the difference of SiliCycle® SiliaBond® Reversed-Phase silica gel (C18, C12, C8, C4...) will be available soon in another application note (Mono- or Polymeric, Endcapped or not).*




### EXTRACTION PROCEDURE

 <b>SPE Cartridge type:</b>	<ul style="list-style-type: none"> <li>● <b>SiliCycle® SiliaPrep™ Reversed-Phase</b></li> </ul> <p><b>Note:</b> Consult SiliCycle® catalog for all more details</p>
 <b>Analyte structure:</b>	<ul style="list-style-type: none"> <li>● <b>Polar organic analytes</b></li> </ul>
 <b>Sample pre-treatment:</b>	<ul style="list-style-type: none"> <li>● <b>Sample filtration (if required)</b> Filter the sample if the solution is not clear (present of suspension)</li> <li>● <b>Sample dilution (if required)</b> Dilute the sample if the viscosity is too high</li> <li>● <b>pH adjustment for ionizable acidic analytes (if required)</b> Sometime for ionizable acidic compounds, it will be preferable to adjust the solution pH to two units less than analyte pK<sub>a</sub> (acid in protonated form).</li> </ul>



**EXTRACTION PROCEDURE**
 **SPE extraction using SiliaPrep™ RP silica gels:**
 **Column conditioning step**

-  Solvent: Methanol, acetonitrile or THF
-  Volume: 1-2 column volume
-  Flow rate: 2-4 mL/min




 **Column equilibration step**

-  Solvent: Water or buffer (or sample pre-treatment solvent)
-  Volume: 1 column volume
-  Flow rate: 2-4 mL/min


 **Sample loading**




-  Load directly the prepared sample on the top of the cartridge
-  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.

 **Interferences washing step**

-  Solvent: Mixture of aqueous solution or buffer and polar solvent  
ex: water/methanol
-  Volume: 1-2 column volume
-  Flow rate: 1-2 mL/min


**Note:** For lipophilic interferences washing, add 10-30 % of methanol or acetonitrile to the buffer

 **Analyte elution step**









-  Solvent: Non-polar or polar organic solvent(s)  
(may contain water, buffer and/or strong acid or base)  
ex: methanol, acetonitrile and HCl
-  Volume: 2-4 column volume
-  Flow rate: 1 mL/min

**Note:** a drying step (under vacuum) can be done before the analyte elution step.

 **Analytical method :**

-  Related to the application.

**SiliCycle SiliaBond Reversed-Phase Sorbent Reference Number**

 <b>SiliaPrep™ C18 <i>ne</i> (23%)</b>	⇒	SPE-R <b>301</b> 30B-xxx
 <b>SiliaPrep™ C18 (17%)</b>	⇒	SPE-R <b>302</b> 30B-xxx
 <b>SiliaPrep™ C18 <i>nec</i> (monomeric)</b>	⇒	SPE-R <b>333</b> 30B-xxx
 <b>SiliaPrep™ C8</b>	⇒	SPE-R <b>310</b> 30B-xxx
 <b>SiliaPrep™ C8 <i>nec</i></b>	⇒	SPE-R <b>311</b> 30B-xxx
 <b>SiliaPrep™ Cyclohexyl</b>	⇒	SPE-R <b>615</b> 30B-xxx
 <b>SiliaPrep™ Cyano</b>	⇒	SPE-R <b>380</b> 30B-xxx
 <b>SiliaPrep™ Phenyl</b>	⇒	SPE-R <b>340</b> 30B-xxx

*Consult SiliCycle catalog for the choice of cartridge volume and sorbent bed weight possibilities (-xxx)*