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# EcoSEC RI/UV GPC Standard Operating Procedure



These instructions are intended for reference only, and will *not* replace the thorough training required for proper system operation. Contact a superuser/ staff member with questions or to report a system problem. Written by Dr. Daniel Paley, updated by Dr. Manju Rajeswaran (June, 2021)





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1.	Enable the tool in <b>BADGER</b>	Equipment Actions R Enable
2.	Check the solvent supply. Make sure at least 200 mL of solvent is available. If not, contact staff to refill. (NOTE: Your sample must be completely soluble in DMF	Disable
3.	w/ 0.01M LiBr).  Sample preparation: Dissolve ~0.1 mg of sample in 1 mL of mobile phase. Filter the sample through a 0.2 um PTFE syringe filter. Your sample must be transparent with no particulates. Place the sample in a 2mL vial with a septum cap.	0.6
4.	Open the sample tray with the "eject" button.	CO.TEMP   RI: -75.710   UU: -80.900   CO:50.00   CO:50.





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5.	Place your sample in the tray. Remember the vial number.	
6.	Start the EcoSEC software by double-clicking the EcoSEC icon.	EcoSEC
7.	Start the EcoSEC application. Click on the blue diamond icon and login with username Labuser and password polymer1.	EcoSEC Exit Application Help  User Name Password  Application  Application  Log on  Log off  Close  Current User: LabUser
8.	Press Power to start power→	Account beautiful to the production of the plant does when the control to the con





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**9.** Click on the "gears" icon on the main toolbar on the left. Next, at the bottom of the screen, click the "Flow diagram" tab (if it is not selected already). Flow diagram Instrument Parameters | Warm-up | Shutdo 10. Select "Warm-up" Select "OK" Do you want to start warm-up? 11. Wait till "Warm-up" light Warm-up change to "Ready" light. Ready 12. Refractive index (RI) detection is normally preferred because it detects a wider range of analytes and the calibration is slightly more accurate. The RI detector does not need to be switched on. However, if you want to use UV detection, turn on the UV lamp.





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13. On the flow diagram, right click on the UV detector and select "Lamp ON/OFF". Allow the UV lamp to warmup for 30 minutes before running your sample. NOTE: when the lamp has turned on the UV detector icon should be illuminated. DO NOT FORGET TO TURN THE LAMP OFF AFTER YOUR RUN. **14.** To set up your samples, first enter the sample info. Click on the vial icon. **15.** The most recently run queue will be displayed on screen. To start a new queue, click "new" and enter the name for your sample queue. Note: all of the samples you run today will be saved under this queue name.

16. For each sample: enter the proper cup number (position on the auto sampler tray), and name. The rest use the default settings. Double check to make sure your sample(s) is loaded into the proper position(s) in the auto sampler.







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17.	Select Monitor	
18.	It is recommended to wait (about 30 minutes) till baseline is linear and stabilized before starting – all pressure, temp and RI and UV signals are stable.	
19.	To initiate the run, click the analysis dropdown menu and select Start.	EcoSEC Control [Instrument]HLC-8320 [Project]EcoSEC DMF [User]LabUser - Sample qu Project Monitor Method Sample queue Analysis Instrument Report Options    Power UV
20.	Each sample will run for ~ 50 minutes. When your run(s) have finished, select power off from main menu.	Project Ionitor Method Sample queue Analysis Instrument Report Options Help    Solution   Project   Projec
21.	Process your data (steps 22-27) and disable the instrument.	Swagelok





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22. To analyze your samples, EcoSEC Exit Application Help start the analysis application. Double click on the EcoSEC desktop icon and then select the red diamond application. Log in with username **LabUser** and password polymer1. 23. Note: The analysis EcoSEC Analysis Chromatogram Method View Graph Calculation Multi Processing Report Option application will first populate a previously ▼ Browse... analyzed sample(s). To Data Name Sample Name Analytical Time Calculated Tin RSLT0002 JL\_POEGMA\_PINK 2018/09/17 13:39:11 locate your sample, click on RSLT0001 JL\_PNIPAM\_15g 2018/09/17 12:49:10 the browse button and find your queue on the day it was run. Then click on the sample you want to analyze. 24. Select the most current Method with Chromatogram USE THIS - 0.3 mL/min - PMMA std - 17 July 2018 calibration method for 0.3 mL per min - PS standards - 19 July 2017 analysis. 0.3 mL per min - PEGPEO standards - 31 May 2017 Default Method 25. To determine the Mn, Mw, and dispersity index of your samples, click "Peak Edit." Use the Draw, Move, and Delete buttons to edit your peaks.





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