TRACES Centre
Fluorometer Standard Operating Procedure

PTi QuantMaster 40

Operating Parameters:

PMT: 180 nm-900nm UV-Vis
NIR: 500nm-1700nm NIR
Temperature: -20°-105°C

A. Operating Procedure: Initial Set-up
1. Turn power cord switch to ‘ON’
2. Turn lamp ‘ON’ (allow min of 15 min for warm up)
3. Check water level in the recirculator (add if required)
4. Check slits- Assure that Ext slits match & Em slits are matched
   a. Please be advised that 0.25mm=1nm
5. Modes UV-Vis or NIR are chosen
6. Turn on computer and click on Felix GX

B. Operating Procedure: UV-Vis Set-up
1. Grating Selection:
   UV-Vis
   ![Diagram of UV-Vis]
   Blue    Black

2. Modules Selection:
   a. Turn on the ASOC -10
   b. Turn on the Motor Stirrer
   c. IF DOING TEMPERATURE MEASURMENTS, turn on the TC125

3. Modes:
   a. dig-vis-temp : uv-vis analysis using a temperature function
   b. Go to Setup
   c. For emission scan select EM Scan, for excitation scan select Ex Scan
   d. Temperature Controller must be enabled and the stirrer can also be enabled.
e. Click on traces to view different parameters (i.e. temp, detector)
f. Real-time Correction – view either em or ex correction
g. Acquisition settings-
   - Excitation wavelength
   - Emission wavelength range
   - Set step size and integration (experiment dependent)

h. Slits for emission and excitation are matched and manually set into software

4. Background
   a. Close the lamp slit
   b. Acquire 5-10 sec scan
   c. Accept
   d. OPEN LAMP SLIT

5. Start
   a. If running a temperature experiment, the run will start after it has reached the desired temp
   b. Experiment is running

C. Sample Data Evaluation

1. Data is opened for viewing

2. Data is closed

3. Math

   A. Peak Finder
      a. Low X
      b. High X
      c. Execute

   B. Normalize
      a. To a reference peak
      b. Min-Max

   C. Export Data
      a. Session: entire experiment that was run
      b. Trace: specific experiments (i.e. normalize, peak pick)

   D. Manipulate
      a. Default interaction doesn’t allow free movement of cursor
      b. Panning and zooming selection available
      c. Cursor option available
D. Time-based Experiments

A. To select the time-based experiment must be chosen and ENABLED
B. Enable Stirrer
C. Static Expt.
   a. One temperature for the run
D. Time Base
   a. Specific temperature and duration in seconds
E. Temperature Ramp
   a. Beginning-End Temperatures chosen with a rate ramp (°C/min)

E. Operating Procedure: NIR Set-up

1) Grating Selection:

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NIR

Blue   Black
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2) Follow the “A. Operating Procedure: Initial Set-up” above

3) Module Selection
   a) Turn on the 410 SP Lockin
   b) Turn on the OC 4000

4) Check slits- Assure that Ext slits match & Em slits are matched
   a) **Please be advised that 0.25nm=2nm**

5) Place the appropriate long pass filter in the emission slot
   a) Please see TRACES Lab Manager for details
   b) The 850nm long pass is provided in the sample housing

6) Place the appropriate cutoff filter in the excitation slot
   a) Please see TRACES Lab Manager for details
   b) The default is no filter

7) Under no circumstances are the below equipment to be changed, they are calibrated
   a) OC 4000
   b) 410 SP Lock-IN

8) Remove the AC adapter from the pre-amp:
   a) If the experiment requires high sensitivity or very low level work
   b) REPLACE WHEN FINISHED

9) Modes
   a) nir-temp:nir expt with a temperature ramp
   b) Got to Setup
      i) Continue similar to UV-Vis setup, start at Section B subsection 3b)

Written by Tony Adamo March 2012