

1. TO BEGIN

- Switch the instrument on by connecting the power supply and pressing the power button on the front panel; the screen will be illuminated after a few seconds
- Ensure the sample, blank and waste tubing are present and configured correctly:
 - PORT A (from front of instrument) – calibrant / sample line
 - PORT B (front port "B" on left side) – blank line
 - Waste (rear port "W" on left side) – waste line with empty waste container

2. SELECT THE COD RANGE

Press the MENU button on the touch screen:

- Select SET UP / ANALYSIS METHOD / CODRANGE and press the ENTER button
- Use the arrow up/down buttons to select the appropriate COD range for your samples, then press the ENTER button

Advanced Blue.....< 25mg/L
Green.....< 150 mg/L
Yellow.....< 1,500 mg/L
Red..... < 15,000 mg/L

3. PREPARE THE SAMPLE, BLANK AND CALIBRANT SOLUTIONS

Select the appropriate electrolyte and calibrant for your COD range:

- Prepare your Blank Solution by mixing COD-free water with electrolyte
- Prepare your Calibrant Solution by mixing the calibrant with electrolyte
- Prepare your Sample Solution by mixing the raw sample with electrolyte
- **Ensure that your samples do NOT contain particulates >50um, are within the specified pH (4-10) and chloride limits, adjust as necessary**

Advanced Blue..... 3 parts with 1 part blue electrolyte
Green..... 1 part with 1 part green electrolyte
Yellow..... 1 part with 9 parts yellow electrolyte
Red 1 part with 49 parts red electrolyte

Chloride Limits:	Advanced Blue.....<266 mg/L	Green.....< 400mg/L	Yellow.....<2000 mg/L	Red.....<10,000mg/L
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4. PRIME LINES

Place the PORT A line into the Calibrant Solution and the PORT B line into the Blank Solution:

- Select MENU / OPERATION / PRIME LINES / PRIME PORT A and press the ENTER button, repeat a total of 3 times, and ensure solution is flowing steadily out of the waste tubing
- Select PRIME PORT B and repeat a total of three times

5. CALIBRATE

- Select MENU/ OPERATION / RUN CALIBRATION and press ENTER, the instrument will “Beep” and prompt the user to press ENTER twice
- The instrument will “Beep” again midway through the calibration; press the ENTER button when prompted
- Run at least TWO calibrations and verify that the M, C and ITerm values are within acceptable limits prior to analyzing samples
- For added convenience, calibrations may also be performed using MANTECH’s PeCOD Pro software

Adv. Blue*: 50 < C < 300, ITerm > 16
Green: 150 < C < 700, ITerm > 16
Yellow: 200 < C < 750, ITerm > 14
Red: 250 < C < 800, ITerm > 14
0.02 < M < 0.06
0.01 < M < 0.08* For Adv. Blue

6. RUN SAMPLES

Place PORT A into the prepared Sample Solution (see Step 3)

- Prime PORT A three times (see Step 4)
- Press the RUN button; the instrument will “Beep”; press the ENTER button to begin analysis
- For added convenience, samples may be run using MANTECH PeCOD Pro software
- After the last sample is analyzed, move the PORT A line into deionized water and prime 3 times to keep the electrode block hydrated

Sensor and Electrode Block Storage

Guidelines

- The sensor and electrode block may be stored in the PeCOD® for up to three weeks, ensure that the PeCOD® has been primed with DI water to keep the electrode block hydrated.
- If the unit will not be used for more than three weeks:
 - Prime PORT A and PORT B with DI water, three times. Repeat with air, priming three times. This ensures that the fluidics lines are free of liquid.
 - Remove the electrode block and sensor, and fill the block with deionized water (see instructions below). Place the sensor in its original package when not in use as it is light sensitive.

Flushing and Storing the Electrode Block

1. The electrode block should always be kept hydrated. Flushing with DI water maintains the life of the electrode block, and is a general troubleshooting procedure. Flushing is necessary for short term storage. Long term storage requires the block to be filled with 3M NaCl.
2. Using the syringe and tips provided in the starter kit, fill the syringe with DI water and find the appropriate sized tip for the hole indicated below. Push DI water through the hole. This will flush out the internal channel and come out the other side. Refill the syringe and repeat the process 5-6 times.
3. Place electrical tape over one hole to prevent the DI / NaCl from draining out of the internal channel and fill with the appropriate solution for storage. Once filled, tape over the second hole and write the type of solution inside and the date it was stored. Tape the O-rings down to prevent them from getting lost.



Removing Blockages from the PeCOD® Analyzer

The PeCOD® utilizes nanotechnology and the internal fluid lines may become obstructed by particles larger than 50uM in size. It is important to filter or settle samples containing particles large enough to block the internal components of the PeCOD®. However, should a blockage occur, back flushing PORTS A and B will clear the blockage in most cases.

1. Obtain the syringe and tip kit supplied with the PeCOD® and fill a syringe with DI water. Use the appropriate sized tip for the hole indicated below.
2. Open the PeCOD® lid and remove the sensor.
3. Place the PORT A tubing into a waste container as shown.
4. Insert the syringe with a narrow tip into the back, left hole as shown, the tip should fit snugly into the hole so that no air is introduced.
5. Select MENU/ OPERATION / PRIME LINES / PRIME PORT A
6. Press ENTER, and at the same time gently push on the plunger of the syringe. You must prime PORT A to open the valves of the internal fluidics path. Observe the flow of water out of the PORT A tubing and note any particles that are expelled into the waste beaker. Stop pushing the plunger when you hear the pump stop.
7. Repeat Step 6 a few times and ensure the flow out of PORT A is strong.
8. Repeat the same process for PORT B, using the same syringe tip and hole position.
9. Prime as normal to verify that the blockage has been removed. Note that each prime should be between 1.8 – 2.5mL.

