Q: Why are my PeCOD values reading low in comparison to the dichromate method?

A: The most common cause is chloride interference.

Chloride interference can impact COD outputs no matter what methodology is used. For the PeCOD method, the interference is negative – the samples are measured as having lower COD values than expected (see the figure below for recommended limits). Meanwhile for the dichromate method, the interference is positive and results in higher COD values. This results in a significant discrepancy between the two different methods with neither measurement accurate when a chloride interference exists!

The solution for this challenge is as simple as diluting the problematic samples until the chloride concentration falls below the maximum allowance. The lowest range on the PeCOD has a maximum allowance of 400 mg/L while the dichromate method's is 100 mg/L according to Standard Method 5220. This can be increased to 1500 mg/L with supplementary mercury sulphate. Additionally, the detection limit of COD in the PeCOD is 0.7 mg/L in Advanced Blue and 1.0 mg/L in Green range. It is 50 mg/L for the dichromate method when looking for quantitative results or 1.0 mg/L when estimated. This makes the PeCOD more suitable for both low-COD high-chloride samples as well as samples that need significant dilution due to high chloride levels.

In addition to the PeCOD method having higher chloride tolerance with lower detection limits, COD (and BOD) results are generated in 10 minutes utilizing a safe and green method.

