

### Sample Filtering Guide for PeCOD Analysis

Samples must be filtered prior to peCOD analysis to ensure that no particulates greater than 50 micron ( $\mu\text{m}$ ) are primed into the peCOD. Particulates larger than 50 $\mu\text{m}$  can cause clogging, which can lead to damage of the internal fluidics of the machine. For pulp and paper and wastewater applications, MANTECH recommends using a 35 $\mu\text{m}$  polyethylene (PE) syringe filter. These filters can contribute trace amounts of organics, which are negligible for wastewater applications. For drinking and source water applications it's important to use a filter that does not contribute organics to the filtered sample. One of MANTECH's research partners has recommended a 0.45 $\mu\text{m}$  polyethersulfone (PES) filter; however, other filter types may also be acceptable, if, no organics are contributed by the filter. Since these applications traditionally see less particulates, having a smaller pore size filter hasn't shown an impact on the peCOD results.

To prevent clogging and damage, follow the steps below:

1. Gather the following supplies: 10mL syringes, 35 $\mu\text{m}$  PE syringe filters (or similar filter that doesn't contribute COD to the samples), sample tubes and lids, and the unfiltered samples.



2. Fill the syringe with the unfiltered sample. **Attach the filter** and ensure it is fastened securely. Push the sample through into a new tube labeled Filtered.



3. Once there's sufficient filtered sample, measure the correct volume of sample for the working COD range into a new sample tube, labeled Mixed. Add the correct volume of electrolyte for the COD working range to the Mixed tube. For mixing ratios of each working COD range, refer to Table 1: COD range mixing ratios for sample preparation. Screw on the sample tube lid and invert several times to mix the sample.



Table 1: COD range mixing ratios for sample preparation.

COD Range	Mixing ratio	Volume Sample (mL)	Volume Electrolyte (mL)
Advanced Blue	3:1	15	5
Green	1:1	10	10
Yellow	1:9	2	18
Red	1:49	0.5	24.5

4. Once the samples are filtered and mixed at the correct ratio with the electrolyte, proceed with sample analysis.

Document Change Log

Version	Date	Author	Changes
2	8-Aug-2019	Heather Jasumani	<ul style="list-style-type: none"><li>• Document ID assigned</li><li>• Formatting</li></ul>



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