

A decorative graphic consisting of several red dots of varying sizes arranged in a cluster, with a vertical dotted line extending upwards from the top dot.

Switching from Oil Testing to Water and back using the HIAC 8011+ and PODS+

Introduction

This application note will detail the processes required when switching from water based sampling to oil based sampling and/or from oil based sampling to water based sampling. There are 2 types of flushing fluids used during this process; 99% Reagent grade IPA (Isopropanol) for flushing and displacing the water based residue when transitioning from water to oil and a solvent (i.e. Mineral Spirits) to break down and displace the oil residues when transitioning to water based sampling. Note – The “**Maintenance**” function refers to the 8011+ and the “**Cleaning**” function to the PODS+.

When switching from water to oil

After using the system to test water based fluids and then transitioning to oil based fluids perform the following steps:

1. Wipe off the outside of the sample probe located inside the pressure chamber with a clean and lint free cloth or wipe to ensure all water based fluids are removed.
2. Using the **Maintenance** or **Cleaning** function and **Clean by Volume** option, purge the system with 100ml of a clean Reagent Grade IPA, (99+ percent pure). This flushing fluid displaces nearly all of the water based fluid from the wetted path.
3. Using the **Maintenance** or **Cleaning** function and **Clean by Volume** option again, flush the system with 100ml of solvent (QED, Mineral Spirits, etc.). This solvent further flushes the wetted path of any residual water/IPA and preps the instrument to run mineral based fluids.
4. Select the proper sensor calibration curve. MTD in Oil, or ACFTD in Oil.
5. Select or create the new recipe for the mineral based samples to be run.

After completing the above processes, the system can now be used to test mineral based fluid samples.

When switching from oil to water

After using the system to test oil based fluids and then transitioning to test water based fluids perform the following steps:

1. Wipe off the outside of the sample probe located inside the pressure chamber with a clean and lint free cloth or wipe to ensure all oil based fluids are removed.
2. Using the **Maintenance** or **Cleaning** function and **Clean by Volume** option, purge the system with 100ml of a clean solvent (QED, Mineral Spirits, etc.). This solvent displaces nearly all of the oil based fluid from the wetted path.
3. Using the Maintenance or Cleaning function and Clean by Volume option again, flush the system with 100ml of Reagent Grade IPA, (99+ percent pure). This fluid further flushes the wetted path of any residual oil/solvent and preps the instrument to run water based fluids.
4. Select the proper sensor calibration curve. PSL (Water apps), MTD in Glycol (Glycol apps)
5. Select or create the new recipe for the Water or Glycol based samples to be run.

After completing the above processes, the system can now be used to test the water based fluid samples.

Conclusion

The HIAC 8011+ and PODS+ instruments have not only an extremely wide viscosity range from 1 to 425 cSt, but these instruments have the added benefit of sampling an incredibly wide range of fluid types. This includes but is not limited to: organics, fuels, fuel oils, waters, glycols and of a multitude of natural, synthetic, phosphate esters, and other mineral based fluids.

Authors



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He has created and developed many of the liquid systems production processes and procedural tools for the Beckman Coulter Life Sciences Particle Counting products. These products include: HIAC 8011+, PODS+, 9703+, ROC, and HRLD Sensors. He has been in the Particle Counting Industry for 22+ years in a multitude of Engineering and Technical capacities ranging from Metrology to Customer Service, Technical Training, and Applications Support. He is a member of the NFPA U.S. TAG to ISO/TC 131/SC 6 Contamination control group.