

## "In-Line Filters; Yes or No?"



Historically, most sample systems have been plagued with periodic plugging high pressure reducing devices by bursts of particulate (crud). Because of this, some system designers and users have advocated using an in-line filter between the primary sample cooler and the pressure reducing device.

Unfortunately, a filter in this location can significantly alter the sample before it reaches the on-line analyzers. The crud removed from the sample stream can act as a sponge for ionic matter, thus altering the readout of ion sensitive analyzers. Since most of the particulate is magnetite, oxygen in the sample can react, causing a bias of the oxygen analysis. If the filters have a pore size of 20 microns or larger, the smaller particles passing through can still be large enough to cause measuring errors in colorimetric analyzers. Filters with a smaller pore size require frequent replacing.

The best solution is to run a "clean" system. This means establishing a sample flow rate that keeps the crud from settling out in the sample line during normal operation. EPRI recommends 6 feet/second for liquid samplers.

With a reasonable velocity maintained in the sample line, undissolved particulates will be swept cleanly through the system to the sink or recovery header.

If necessary, a filter can then be installed in the branch line leading to the analyzer. Since 90% or more of the crud will pass through the main line, the filter will only be exposed to a small percentage of the total particulate matter.

Since plugging is most severe at startup, the sample line should be thoroughly flushed after each start up and prior to placing the line in service.

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Every Customer a Commitment***

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