

## Fluid Maintenance: Large Systems

*Maintenance is essential to keeping equipment running smoothly and heat transfer systems are no different. For the most part, the fluids can be considered maintenance-free but systems should be monitored and serviced accordingly. And of course there does come a time when you'll need to consider changing the fluid too.*

In our [last post](#) we looked at some tips for maintaining the fluid in small heat transfer systems. This time around we'll look at some special considerations for large systems.

Large systems are usually set up and coordinated by an engineering firm. They're typically heated by a gas or oil-fueled boiler and pieced together from multiple sources: one supplies the boiler, another might supply the pump and there may even be a third one for users like kettles, reactors, laminators etc.

Routine [fluid analysis](#) is an essential maintenance tool for any system. For large systems, an annual sample is usually sufficient, but it's best to work with your fluid provider to arrange an appropriate schedule for your specific needs.

Regularly inspecting the system itself is another good habit to get into. Check for leaks and inspect any accessible areas. Monitor your meters (pressure gauges, flow meters, etc.) and keep good records while looking out for any changes in flow rate or pressure.

Significant changes could indicate a potential problem and potentially result in fluid degradation.

Regular boiler and furnace inspections are always a good idea too and occasional tune ups will maintain efficiency and keep things running smoothly.

It's also good practice to routinely inspect strainers and filters for foreign debris. Finding carbon deposits could indicate thermal degradation, while the presence of sludge is often a sign of oxidation. Foreign material could also indicate a breach from your process side.

Large systems typically use expansion tanks with inert gas buffers (usually nitrogen) for protection against oxidation. Inspect controls valves and gauges and ensure sufficient gas is available. You'll want to check your expansion tank to make sure it's not running hot. Ideally, these should be kept under 200°F to minimize oxidation.

When it comes time for an fluid change, it's critical to be thorough. The key is to make sure degraded fluid is completely drained from the system (at least 95%). Most fluid vendors have flushing fluids that will help with this.

Finally, our best piece of advice is this: keep it up! Routine maintenance and keeping up with your analysis schedule is crucial to extending fluid life and keeping your equipment clean and efficient.

Michael Bates, Technical Director

1-800-446-4910 ext. 111