

Sludge Series Part II: How to Avoid Sludge in Your System

In [Part I](#) of this 3-part series we looked at the most common causes of sludge. This week we'll look at some simple ways to avoid it.

You've just invested thousands of dollars in new equipment and the last thing you want is a system plugged up with sludge. So what do you do?

Take a good look at your system. You'll want to find the 'weak points' in your equipment. Weak points are considered to be any point in the system where the fluid contacts air. Once these points are identified, measure the fluid temperature in these areas (usually expansion tank or reservoir) during normal operation. If the fluid temperature is above 200°F, there are a few quick steps that might help.

1. If the system does not have an external expansion tank or fluid reservoir, consider adding one. Placing a reservoir of 'cold' fluid at the point of air contact will significantly reduce oxidation.
2. If the temperature in the expansion tank/reservoir is running above 200°F, investigate the flow path. If the fluid is flowing through the reservoir consider plumbing it so that the reservoir is "T'd" into the system and not part of the circulation loop.
3. If the expansion tank is not part of the circulation loop but is still running hot, you can consider moving it further away from the main system or add a nitrogen blanket to buffer the fluid from air contact.

What else should I look for?

There are a few key pieces of equipment that, if maintained, can help you manage sludge build up: heat exchangers and bypass valves. Heat exchangers are often used to cool oil before it's exposed to open reservoirs which helps to slow down oxidation. Bypass valves, generally on smaller equipment like portable temperature control units have the capability to circulate hot fluid through the expansion tank and are used during start-up to vent the system (remove moisture, air etc). However, it's a good idea to check the valves after start-up to make sure they aren't stuck or left open after the system is up and running.

In larger systems there is often a second leg or pipe going to the expansion tank. This leg should normally be closed but can be opened to circulate hot fluid when venting is required, a maintenance checklist to ensure this is kept closed will ensure you don't prematurely oxidize the fluid. Remember; hot expansion tanks/reservoirs will accelerate the rate of oxidation

My equipment is working fine. What else can I do?

If your heat transfer fluid provider has a [fluid analysis service](#), we recommend that you take advantage of it. Fluid analysis will help you know when to perform timely oil changes and make system adjustments that will help maximize your fluid service life and investment. Duratherm's fluid analysis service is one of the industry's most comprehensive and we provide it to our customers for free.

We know that oxidation and sludge build-up can be a tricky thing to maintain. That's why all [Duratherm fluids](#) contain an extensive additive system to help combat oxidation. Check with your fluid supplier to ensure they have incorporated some protection in their fluid, particularly if your system is open to the atmosphere.



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Hopefully we've shed some light on how to keep your system sludge-free. But what if it's already fouled-up? In [Part III](#) we'll tell you how to clean it up and get things moving again.

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