

HEATEC TEC-NOTE

Publication No. 6-04-128

Thermal fluid—when should you replace it?

Are you using a hot oil (thermal fluid) heater to heat asphalt at your HMA plant or asphalt terminal? If so, do you know when it's time to replace the thermal fluid?

The fluid should be analyzed at least once a year. For HMA plants, an ideal time is at the end of the paving season, before the heating system is shut down for the winter.



Your thermal fluid supplier may offer fluid analysis as a service. Check to see if they have collection kits like this one available.

The analysis should be done by a specialist experienced and properly equipped to analyze chemical properties of the fluid. Fluid suppliers may do a free analysis for you. Or you may need to have an independent laboratory to do the analysis.

The sample should be taken while the heat is shut off and the fluid has cooled down somewhat, but while the system is circulating the fluid.



Take sample while heat is shut off and fluid has cooled, but while the system is circulating fluid.

Although you *cannot* reliably tell if the fluid is okay by visually inspecting it, you may be able to detect problems. So, every time you inspect the strainer on the heater, be sure to watch for signs of problems with the thermal fluid. (You should inspect the strainer once a month and clean it if it is dirty.) If the appearance of the

fluid shows signs of a problem, you should have the fluid analyzed. Watch for the following signs:

- Flakes of carbon
- Foam or milky appearance

- Presence of asphalt that may have leaked into the fluid
- Unusual thickening of the fluid



New thermal fluid.



Old thermal fluid with bad signs.

Remember, these may be early signs of a problem that could become more serious if allowed to continue. It is almost always better to correct problems at their early stages.

When you replace old thermal fluid with new fluid, the new fluid will loosen carbon and other debris left in the system by the old fluid. This debris will flow through your thermal fluid piping and rapidly begin to clog the strainer. Debris can bypass a clogged strainer and enter the circulating pump, causing unnecessary wear and damage.

A very effective solution to this problem is to install a sock filter in the heater's thermal fluid piping. The sock filter acts as a secondary filter to the strainer. The extra protection is worthwhile. It not only protects the circulating pump, it greatly helps to keep the new fluid clean.



Sock filter (in color) and bypass valves installed in the thermal fluid piping of a heater.