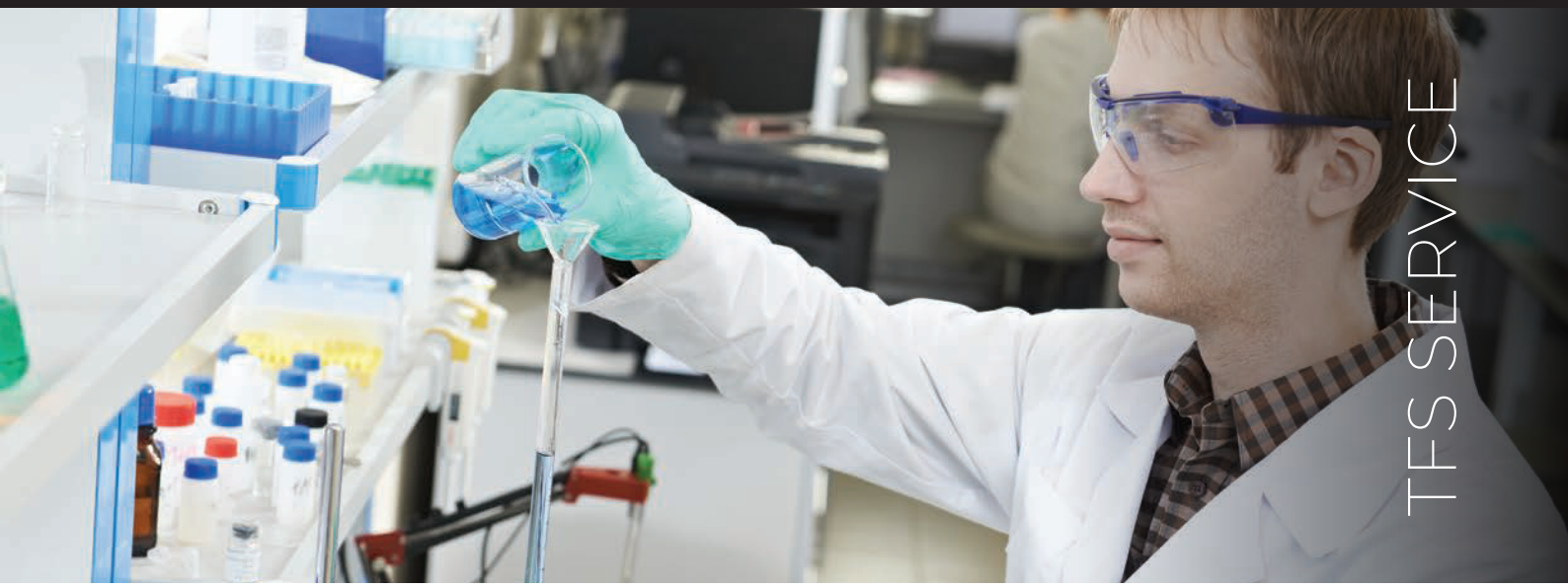
THERMAL FLUID SOLUTIONS

20 Hallsteads, Doveholes, Derbyshire, SK17 8BJ. UK
+ 44 (0) 1298 815862 (UK) **+ 1 864-516-7506** (USA)

www.thermalfluidsolutions.com



SOLIDS REMOVAL SERVICE:

HT FLUIDCLEAN

For many years the breakdown of a mineral oil based thermal fluid has been believed to fall into two clear uncomplicated categories:

VOCs OR LOW BOILERS

These products of thermal degradation are the cause of dangerous decreasing flash points leading to higher likelihood of cavitation-based seal and pump failure and an increased risk of fire and explosion should a resulting fluid escape happen.

This degradation can be easily managed using the TFS HT FluidFit process.

CARBON OR HIGH BOILERS

The presence of high boilers becomes apparent through carbon or Pentane insoluble measurements with a generally accepted operational limit in mineral thermal oils of around 0.3% to 1.0% depending on measurement method and specific oil type.

As this broadly accepted limit is approached, these pentane insolubles tend to drop out of the solution in lower turbulence areas of flow, leading to the formation of softer waxy deposits which are responsible for the fowling of the system, including the heater coils and heat exchanger surfaces. These consolidate over time to form harder carbon solids resulting in blockages and more efficiency issues. The only action historically was to change the fluid.

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Unparalleled and extensive industry experience gained through TFS's involvement with its worldwide base of customers and system designs continues to provide greater understanding of the mechanisms resulting in the generation of 'high boilers'.

Symptoms of this type of degradation will be slow to manifest and often go unnoticed over years. The level of insoluble elements will reach the fluid's maximum saturation level of between 0.3% and 1.0% and then begin to drop out of the solution as sediment. Over time, and with temperature, they begin to harden. When this happens in low flow areas they cause the previously mentioned fowling of heat-exchangers and can cause flow and serious efficiency issues.

If unchecked over time, the degradation continues while the saturation tolerance of the fluid to contain these insolubles remains constant. This can be indicated as a constant level during testing, however, the deposition continues and goes unnoticed.

The natural, but expensive, answer would be to fully change the fluid. Thankfully, this level of contamination is rarely reached so costly, 'difficult to do well', fluid changes are rarely required.

The contaminant saturation level in a fluid falls as the temperature of the fluid reduces. When the fluid has been cooled ready for changing some of the contamination will have dropped out forming soft and hard solids in the system. If not undertaken correctly, draining and refilling simply contaminates the new fluid as soon as the fluid is heated up and will almost instantly saturate with the settled residue that was left behind. The process continues with little improvement.

DO I HAVE THAT ISSUE?

Firstly, if power consumption figures exist for the plant they should be the first point of call. If the power required to heat an unchanged piece of equipment has increased over time then the chances are yes.

Secondly, If the solids level measured during normal fluid testing over a period of time was increasing but has now seemed to plateau without remedial action at around 0.3% then the chances are also high.

Contact Thermal Fluid Solutions today to identify which solution is most suitable for you.