DURATHERM
Heat Transfer Fluids

FLUID ANALYSIS: SAMPLING PROCEDURES AND INTERVALS

Duratherm fluids are engineered to have a long service life and as a value-added service to you, our customers, we offer a complimentary, free-of-charge analysis program to ensure your investment is protected and your fluid life is optimized for your application.

With thousands of uses for heat transfer fluids and with each system utilizing the oil in a different manner, it is impossible to predict the life expectancy of a heat transfer fluid.

So to help you understand the condition of your fluid, we offer complete analysis including flash point, viscosity and TAN (Total Acid Number) and if warranted, we will complete a full gas chromatograph distillation.

Sampling Procedures

All we require is 300 ml (8 to 10 ounces) of fluid. We can provide a sample kit; however, any clean container suitable for shipping is acceptable.

Samples should be taken from a circulation point in the system in order to provide us with a good representation of the over all fluid. If sampling is ongoing, a sample point should be identified in the system and used for each subsequent sample.

In order to provide a complete 'snap shot' of the fluid's life cycle, it is recommended that a baseline sample be taken within a few days of commissioning a new system.

If you are replacing an existing fluid, we recommend a sample of the old fluid be retained as it's drained and then have it analyzed.

Once the system has been filled with Duratherm, an initial baseline sample should then be taken within a few days. This, combined with the 'before' sample of the old fluid, will help determine the efficiency of the oil change.

For an ongoing analysis we recommend working with our technical support team to determine a proper, routine analysis program for your specific application. However, the following general guidelines can be considered as recommended intervals.

For larger systems of 1900 liters or more (500 + gallons), a yearly sample is generally sufficient.

For smaller systems, often semi annual or quarterly samples should be considered.

Samples should be sent in any clean container suitable for shipping or we can supply a Duratherm sample container if needed.

Samples Should be Sent to:

Duratherm Analysis Dept.
4205 Martin Road
Commerce Township, MI 48390
1 800 446 4910

All Samples Should be Clearly Marked With:

1. Your company name and contact info
2. Machine or line number
3. Fluid type
4. Hours of use

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UNDERSTANDING FLUID ANALYSIS

Duratherm's complimentary fluid analysis program will help to ensure your thermal fluid's in-service life is optimized for your specific application. Using the data from our analysis, we will be able to make recommendations as to a fluid's continued serviceability with the goal of helping to prevent possible future issues.

Generally there are two things that impact a fluid's life, oxidation and thermal degradation – indicators for which include flash point, viscosity and the Total Acid Number (TAN). What these are, why we analyze them and how they impact a fluid are explained below.

Definitions:

Oxidative Degradation: Oxidative degradation occurs when a fluid at over 93°C (200°F) comes in contact and reacts with air. The reaction causes an acid to form within the fluid that can continue to build-up over time. When the acid reaches its saturation point, it drops out in the form of sludge.

Thermal Degradation (overheating or thermal cracking): Thermal degradation occurs when the fluid is heated past its maximum bulk temperature.

Analysis:

Flash Point: Flash point is basically the temperature at which the vapors from a fluid will ignite if in the presence of an ignition source.

A decrease in the flash point may be an indicator that the fluid has been overheated and is starting to degrade. As a fluid is thermally degraded, a lighter component is produced resulting in a reduction of the flash point.

Viscosity: Viscosity is a measurement of a fluid's resistance to flow – sometimes considered its thickness. An increase in viscosity can indicate fluid degradation by oxidation. A decrease in viscosity may be an indication that a fluid has been thermally degraded by overheating.

TAN (Total Acid Number): Acids are formed when the fluid comes in contact with air (oxidation). We measure the TAN level to show the extent of which a fluid has been oxidized. The higher the number, the more oxidized and acidic the fluid has become.

Typically a new fluid has a TAN of less than 0.05. When fluid analysis indicates a TAN of 1.0, it is generally considered that it's time to change the thermal fluid.