Organic heat transfer fluids degrade over time due to thermal cracking, oxidation and contamination. The by-products of degradation are sludge and coke caused by carbon formation. Contaminates can also include dirt, sand, dust, mill scale, and slag from piping that accumulate during down-time maintenance or from installation.

One of the standard means of filtration in a hot oil system is to have a Y type or basket strainer before the system pump. Typically it is steel or stainless steel 100 mesh. These are designed to protect the pump and possibly the valve or flow meter. The strainer should be cleaned regularly to prevent pump cavitation which can cause mechanical seal failure.

Filtration Systems

Many system problems cause the oil to degrade prematurely, but fluid life can be increased by installing a side stream or in-line filtration system.

In-line filters should be used only with positive displacement pumps (gear). You should never install an in-line filter on a system that uses a centrifugal pump. A second filter in parallel (duplex) can be installed in place of the manual bypass in critical applications such as high temperature electric systems.

Side stream configuration is recommended for systems with centrifugal pumps. The optimal flow rate through a side stream filter is 10% of full system flow. Minimum recommended flow rate is 3%.

Typical filters consist of a metal housing, called a canister, with a fiberglass element, called a filter or cartridge. It is recommended for more severely contaminated systems to start with a 100 micron cartridge and over time work down to a 5 to 10 micron cartridge. Cartridges are generally available in sizes ranging from 5 to 100 microns.

The inlet of the filter is installed close to the discharge side of the pump. The heat transfer fluid is then diverted to the filter by drawing off the existing pipe, for maximum performance 10% of the stream.
MultiTherm® Hot Oil Filtration Systems

MultiTherm® now can assist you with your hot oil filtration needs.

MultiTherm® can lease or design a filtration system to meet your specific thermal fluid system requirements to handle hot oil up to 750° F. If required an additional pump can be added to handle large side-stream system flows to ensure system pressure.

MultiTherm® Hot Oil Filtration Systems offer the following:
- Swing bolts and eye nuts for easy opening cartridge change out
- Insulated filter casing
- Drain valve
- Vented and gasketed lids

MultiTherm FF-1® Flushing Fluid

MultiTherm’s specially formulated flushing fluid helps ensure maximum efficiency by cleaning out heat transfer systems during:
- Start-up — to remove loose materials left in lines and equipment along with oil and some preservative coatings.
- General Maintenance — for removing particulate matter and used heat transfer fluid from system prior to recharge or changeover to another fluid.

MultiTherm FF-1® Flushing Fluid can be used during operation for up to 3 days at operating temperatures as high as 550° F resulting in minimal downtime to your operation.

The Benefits of Hot Oil Filtration

is cleaned through the filter and then piped back in downstream or to the suction side of the existing pump. Positive shut-off ball valves should be installed on both sides of the filter to allow for cleaning without shutting down the entire system.

Benefits of Filtration
- Removal of particulates that can degrade the oil
- Maintains viscosity of fluid longer by reducing sludge build-up
- Maintains thermal efficiency of system longer and reduces energy cost
- Extends oil life
- Reduced maintenance costs by protecting pumps and valves from contaminates

For additional information on how MultiTherm can help with thermal fluid filtration systems or for technical support from the MultiTherm Tech Team contact us at 800-225-7440.

MultiTherm® Hot Oil Filtration Systems offer the following:
- Swing bolts and eye nuts for easy opening cartridge change out
- Insulated filter casing
- Drain valve
- Vented and gasketed lids

Do you want it Electronically?

These newsletters are also available via e-mail. If you would like to receive them electronically, contact us at 800-225-7440 or drop us an e-mail at TechInfo@MultiTherm.com. Please include your name, company, address, phone numbers and e-mail address.

Thanks and we hope you find these newsletters beneficial.

Superior Communication and Service

For additional information on our new filtration systems, any of our Non-Toxic, Non-Hazardous MultiTherm® Heat Transfer Fluids or Fluid Analysis services, please contact MultiTherm at 800-225-7440.

The MultiTherm LLC has been a leading supplier of efficient, non-hazardous Heat Transfer Fluids since 1977. Within a temperature range of -170°F (-112°C) to 650°F (343°C), the company can successfully and economically accommodate a customer’s heating or cooling requirements however exacting they may be. Further, MultiTherm provides troubleshooting help and a fluid analysis service to determine the physical and chemical condition of the fluid.