

## Fluid Properties Explained 2 – Vapour Pressure

At some point in any project involving a new thermal fluid system, somebody will decide that vapour pressure is an important property that should be considered in fluid selection. There will be talk of pump cavitation along with a nitrogen blanket on the expansion tank with the extra costs for high-pressure components.

All of these issues will quickly be reinforced by the thermal-fluid salesman with (you guessed it) the lowest vapour pressure. What can be confusing is that some aromatic-based fluids have higher vapour pressure and coincidentally require more exotic sealing on pumps and valves because of VOC issues. What cuts through the confusion is that all fluid manufacturers specify Schedule 40 seamless piping, 300# flanges and some type of graphite gaskets.

On the equipment side, most suppliers build their expansion tanks to ASME code regardless of the fluid chosen. So the bottom line is that vapour pressure has little effect on the overall cost of a heat transfer system.

One point that does require extra attention – don't confuse "smoke" with vapour pressure. Most thermal-fluid leaks are due to seepage through gaskets, pump seals, valve stems, etc. Regarding such seepage, what will have more of an effect than vapour pressure is whether the fluid is also a good solvent – such as many aromatic-based fluids (which, again coincidentally, typically have higher vapour pressures).