

Detecting Thermal Fluid Leaks

One of the simplest leak detectors for thermal fluid is the smoke that shows up when the hot fluid is exposed to air. The amount of smoke depends on the size of the leak, the temperature of the fluid and to some extent the airflow in the area. Small leaks known as “oozers” can produce an exaggerated amount of smoke because there isn’t enough fluid to form a drop. This steady weeping smokes and then cooks onto the metal near the leak.

With larger leaks, the fluid usually cools quickly as it drips or sprays into the air. Since smoke is actually the reaction of the fluid’s volatile low boiling portions (smaller molecules) with oxygen in the air, this cooling reduces the vaporisation of fluid which helps lessen the amount of smoke. However, if the leak is large enough that it uses up all the fresh air – or if ventilation is insufficient – vapour can accumulate and cause a potential fire hazard.

The key to preventing safety problems from leaks is to make sure thermal fluid systems are not operated in enclosed areas without adequate ventilation. Ensure adequate fresh air flow in any location (valves, flanges, instrument ports, pumps, expansion tanks, for example) where the potential exists for a significant leak.