

Preparation before Heat Transfer Fluid Injection

The heat transfer fluid heating system is required to go through a series of inspection and cleanness to testify the practical performance of system after installation. [Schultz technical engineer comments](#) : Good preparation work before fluid injection is the foundation for system operation safety. System flaws and fluid excess impurities are detected after injection will severely affect system operation security and increase capital costs as some users have to drain fluid again to run system maintenance.

The first thing after system installation is to completely inspect the whole heating system, including the number and installation of devices, meters and valves, the design and installation of expansion tank, the installation of system safety alarm and interlocking devices and the preparation of safety and fire equipment.

The second step to inspect system is to run the pressure and air tight test. The fluid system pressure test should conform to the *Pressure Testing of Liquid Petroleum Pipelines* provision. The test could use water, gas or heat transfer fluid. The test pressure should be two times than its practical operation pressure and be kept in stable in an hour without decreasing. And system pipelines should have no damages and leakage. The gas/liquid phase fluid system is required to run the air tight test. The hydrogenated terphenyl and hydrogenated alkylbenzene gas/liquid phase fluid system can skip the air tight test. But heat transfer fluid boiler, waste heat boiler, steam generator, heat exchangers and vacuum fluid pumping system are usually assembled in site, so the clean dried compressed air or nitrogen gas are used for air tight test in site. The site temperature should not be below 5°C, and test pressure should be 1.15 times than the designed pressure and be kept in ten minutes before decreasing to the designed one. Then brush system welding and connecting spots with liquid soap or other leakage hunting liquid to detect leakage.

The third step preparation is to clean the system. If the boiler, pipelines, storage tank and processing units are run by hydrostatic test before, system clean should be started after draining water through low blow-down valve. Clean dried compressed air, instrument air or nitrogen gas are used to blow and exhaust pipeline system segmentally, removing water, air and impurities. The cleanness should last one to three days to detect system blocking and leakage.

Finally, operate fluid injection and system start-up orderly, and keep clean in the area. Mark clearly the evacuation route and keep the emergency evacuation route clear. Regional warning sign, tapes and fire equipments should be set properly around the area. Put on-off signs on the related electric/gas switches and processing valves.

Only staff can access to the area and all operation should be strictly directed by debugging engineers.