

Insulation for Heat Transfer Systems

Choosing proper insulation is an important step in the design of a thermal fluid system. The wrong choice here can have serious safety implications, so it's important to understand your options.

The two main types of insulation for heat transfer systems are open cell and closed cell.

Closed cell is the recommended option. It's usually made of materials like calcium silicate or glass-foam that won't absorb [fluid](#) if the system leaks. Your local industrial insulation contractor will be able to help you find a suitable closed cell material for your temperature requirements.

Open cell material like fiberglass insulation is NOT recommended. It's porous and will trap or absorb fluid. This is a serious safety hazard because the fluid can oxidize if it gets trapped in the insulation.

As it oxidizes, the fluid produces heat which remains trapped between the process piping or reactor jacket and the insulation. The fluid's fire safety points are gradually reduced and, compounded with the heat created from its degradation, it can start to smolder. This could result in an auto-ignition-type fire should air be introduced to the mix (note: always approach smoldering insulation with proper fire extinguishing equipment and use caution).

Regardless of which type of insulating you're using, make sure there are no areas where fluid can be trapped within it - such as around flanges, valves or any other areas where there's potential for leaks.

Need to know more about insulation for heat transfer systems? Process Heating took an in-depth look at the topic in their article on [Piping, Valves, and Insulation](#). And if you'd like to talk over your options in person, our team is [ready to help](#) as always.

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