

WHITE PAPERS

INNOVATIONS IN INDUSTRIAL REFRIGERATION



WHAT ARE THE ALTERNATIVES TO R22?

There are a number of environmentally friendly refrigerants available. Ammonia and CO2 are natural refrigerants, which

A glycol/brine solution is often used as a secondary refrigerant for temperatures above 0° F. When temperatures fall below that level, special heat transfer fluids are required. While most secondary refrigerants only transfer sensible heat, CO2 can be used as a volatile brine. This allows much higher heat transfer, dramatically reducing pipe size and pumping horsepower. Because a heat exchanger is required to go from the ammonia to the secondary refrigerant, there is decreased efficiency. In addition, the pumping horsepower associated with a secondary refrigerant will be

RELIEF VALVE COMPLIANCE ISSUES FOR OLDER SYSTEMS

The American National Standards Institute (ANSI) approved ANSI/ASHRAE Addendum C as a formal revision to ANSI/ASHRAE Standard 15 in 2000. This revision was a major change and created questions that still linger about the compliance of older systems, especially where renovations are concerned.

Many food processors will outsource compliance efforts through a Process Safety Management/Process Hazard Analysis consultant. The best approach for manufacturers to see where they stand is to conduct a relief valve calculation study.



There is a documented design basis for the vent system that shows compliance with the codes and standards in place at the time the last substantive change to the vent system occurred.

There have been no modifications to the relief vent system other than replacement with the identical type of valves.

2. The entire relief vent header system should be evaluated against current code and updated **IF ANY** conditions exist:

There is no existing modification to the relief vent header system.

Install VFDs on condenser motors to stabilize head pressure and prevent the motors from heavy repeats and intense start/stop cycles. This will allow the fans to change speeds so they don't continually stop and start, which requires additional energy and results in mechanical wear. The biggest payback from a VFD will be on systems with variable loads.

Use floating head pressure

Higher condensing temperatures require compressors to work harder. Find the optimal break-even point where the condensers and compressors are cumulatively using the lowest overall horsepower requirements.

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Published by Stellar 2014

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