

AMMONIA PIPE AND EQUIPMENT LABELING

**PART
2**

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IN PART I OF THIS SERIES, I described some options that facilities have when choosing their RAGAGEP for pipe and equipment labeling. Even though the specific colors and abbreviations called out in Bulletin 114 from the International Institute for Ammonia Refrigeration are not required to be implemented as part of a facility's labeling program, most facilities in the food processing and cold storage industries that use ammonia as a refrigerant follow it, or at least claim that they do. In this issue, we will look closely at the pipe label recommendations found in Bulletin 114, highlighting some of the changes that have been made to the document over the last 18 years, and we will discuss some of the areas where facilities find themselves tripped up.

Bulletin 114 calls out label colors, sizes, and placement of labeling on pipes and equipment in ammonia refrigeration systems. It also calls out specific wording used for the state of the refrigerant, the pressure of the refrigerant, and for the function of the refrigerant in the pipe. Bulletin 114 was first published in 1991. At that time, the primary background color for the label was Safety Yellow. Starting in 2014, Bulletin 114 made a change to Safety Orange to more closely align with ASME A13.1, which calls out Safety Orange as the color for corrosives and toxics.

In 1991, a label for a High Pressure Liquid line would look something similar to this:



Starting in 2014, the label would look something like this:



One thing to note is that the 1991 edition made no mention of a specific color for the state and pressure band text. Starting in 2014, it specifies black text for those bands. Another change that occurred was in the vapor state band. The pictures below show how it has changed over the years.

VAP

1991, 2014, 2017 Editions

VAP

2018 Edition

One area that has consistently tripped up many a facility is the function abbreviations for the pipe. Remember, there is NO requirement that the abbreviations that are called out in Bulletin 114 be used. However, if abbreviations are used on labels that are not called out in Bulletin 114, then your Process Safety Information (PSI) MUST list those abbreviations that differ or are not found in Bulletin 114. Does the top image on this page SSS mean Single Stage Suction? In the bottom left image, does CD mean Condenser Drain as called out in Bulletin 114? In one picture, it actually means Condensate Drain, while in the other it means Condenser Drain. Can you tell which one? A refrigeration operator would pick out the Condensate Drain line to be the insulated one. Here's the problem. How does the new guy tell the difference? How does a first responder? Also, if you look closely, the pressure band on the Condensate Drain is wrong. It should be LOW, as it operates under 70 psig. Also, the state bands should be both LIQ and VAP since two phase flow occurs in that pipe.

Regardless of the abbreviations used, your employees must be trained on them through documented training. This is an easy finding for an auditor. Remember, if



Does SSS mean Single State Suction?

In which image does CD mean Condenser Drain or Condensate Drain? Can you tell?



you state in your PSI that you follow Bulletin 114, then you must do so.

Which brings us to our last topic for this issue. Do you have to switch to the newer Bulletin 114 color schemes? The answer is no, BUT if you wish to continue to use the yellow labels on your piping then you must state in your PSI that you follow IIAR Bulletin 114-1991. If you don't specify a year, auditors and regulators will look to the most recent edition.

In the next issue, we will discuss the recommendations found in Bulletin 114 for pipe colors and equipment labeling.

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