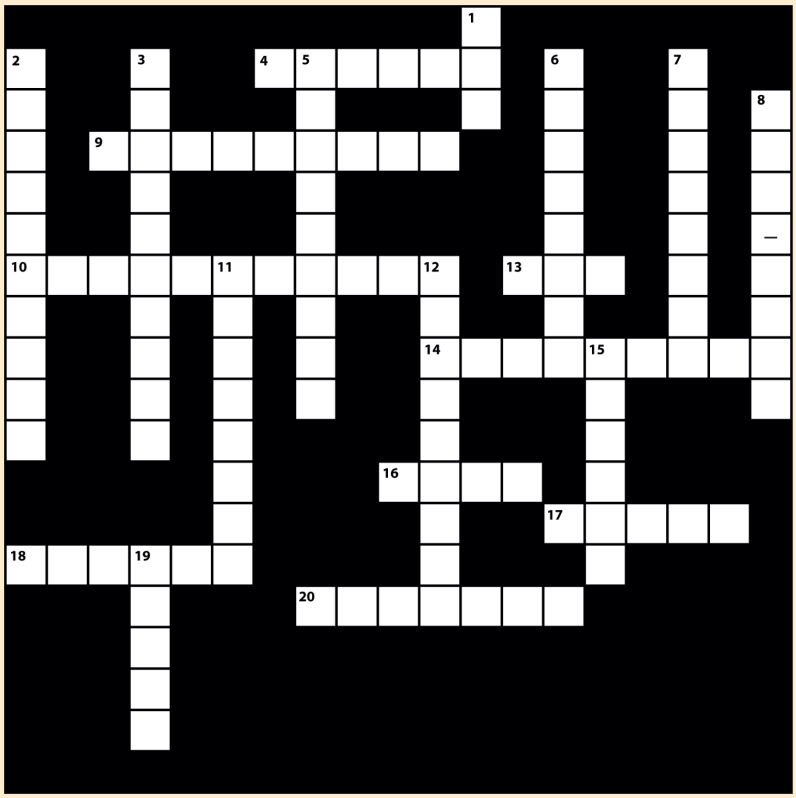
Take the HVAC CHALLENGE™

BY STEVEN G. LIESCHEIDT, P.E., CSI-CCS, CCPR

Moisture and Contaminant Control In Refrigerant Systems



ACROSS

4. Excess moisture in a refrigerating system can cause this type of plating.
9. Organic contaminants in a refrigerating system with a mineral oil lubricant can appear when organic material such as oil, insulation, varnish, gaskets, and these decompose.
10. In this type of moisture measurement titration method, water is titrated with electrochemically generated iodine.
13. Excess moisture in a refrigerating system can cause this to form in expansion valves, capillary tubes, or evaporators.
14. Large volumes of refrigerant are circulated through a contaminated chiller while this is being done to the refrigerant.
16. This organization publishes "Standard B280 – Standard Specification For Seamless Copper Tube For Air Conditioning and Refrigeration Field Service."
17. Ice forms during refrigerant evaporation when the relative saturation of this reaches 100% at temperatures of 32°F or below.
18. Excess moisture in a refrigerating system can cause this to form in a refrigerant system.
20. When this happens to a motor, it is the final result of hermetic motor insulation failure.

DOWN

1. This organization publishes "Standard 710 – Liquid-line Driers."
2. These are used in refrigeration systems to adsorb or react chemically with the moisture contained in a liquid or gaseous refrigerant/lubricant mixture.
3. Excess moisture in a refrigerating system can cause this of lubricants and other materials.
5. Moisture in refrigerant systems can result from this in some hydrocarbon lubricants that produce moisture.
6. Excess moisture in a refrigerating system can cause this type of damage to motor insulation in hermetic compressors or other system materials.
7. Small contaminant particles frequently left in refrigerating systems during manufacture or servicing include chips of copper, steel, or this material.
8. Moisture in refrigerant systems can be a result of leaks in this part of refrigerant system.
11. This can enter a non-hermetic refrigerant system through hoses and seals.
12. Excess moisture in a refrigerating system can cause this on metals.
15. This organization publishes "Standard 63 – Method of Testing Liquid Line Filter-drier Filtration Capability."
19. This is a device containing a desiccant, which collects and holds moisture.

To brush up on the facts behind this month's clues, refer to Chapter 8 ("Applied Heat Pump and Heat Recovery") in the *2004 ASHRAE Handbook – Systems & Equipment*.

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