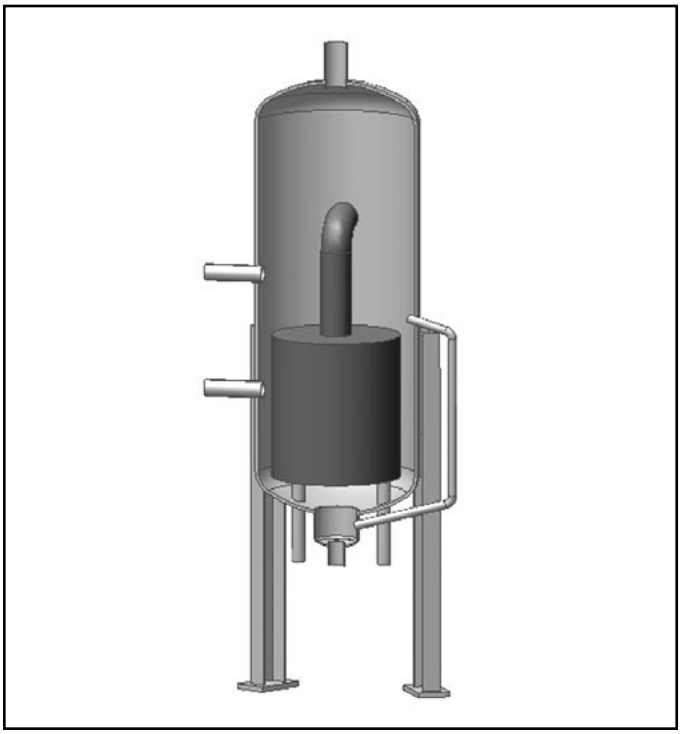
System cleaners remove the water from ammonia systems that air-purgers leave behind

The Phillips Anhydrator is the only system cleaner that boasts:

- Lower Installation Cost
- Self-Regulating Operation
- Shortest Payback Time
- Energy-Neutral Operation
- Very Low Maintenance



For each percent of water in the ammonia, you are losing about 1% in compressor capacity.

LOST COMPRESSOR CAPACITY DUE TO WATER

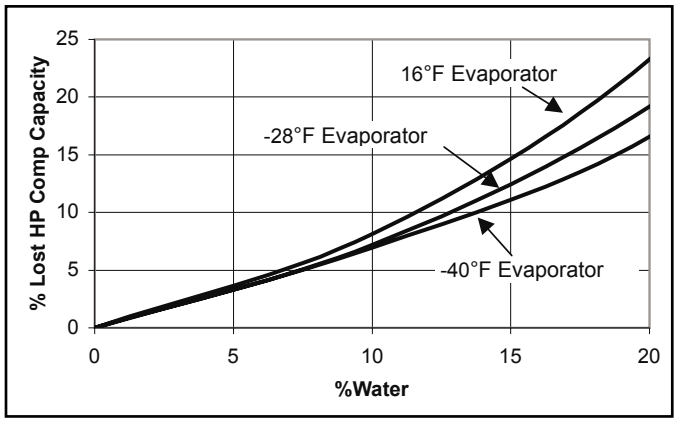


Chart based on increased suction temperature due to water and 2.4% lost compressor capacity per °F. (Source: IIAR Bulletin No. 108)

How can you tell if there's water in your system?

- Air-purgers only remove non-condensables like air. If your air-purger has been venting air, it's been leaving behind the water vapor that's always in the air.
- If your recirculating evaporator is operating a few degrees warmer than the pressure indicates, this could be due to water in the ammonia.
- If water comes out of your oil pot before the oil, there is water in your system.

YOU CAN EASILY MEASURE THE CONCENTRATION OF WATER IN YOUR SYSTEM WITH A GRADUATED AMMONIA SAMPLING CONTAINER, AVAILABLE FROM PHILLIPS.

THE HIGH COST OF WATER

With water in the system, the evaporator pressure must be lowered to maintain the desired temperature. For example a 0°F coil with 5% water in the ammonia must operate at 14.3 psig instead of 15.7 psig. So your compressor must work harder, and uses more energy. The graph (at right) shows the extra energy cost to an ideal system operating with a 0°F evaporator and 95°F condenser. For a 100 TR system operating 24/7 with 5% water in the ammonia, the extra electric power is around $2000 per year (depending on local rates).

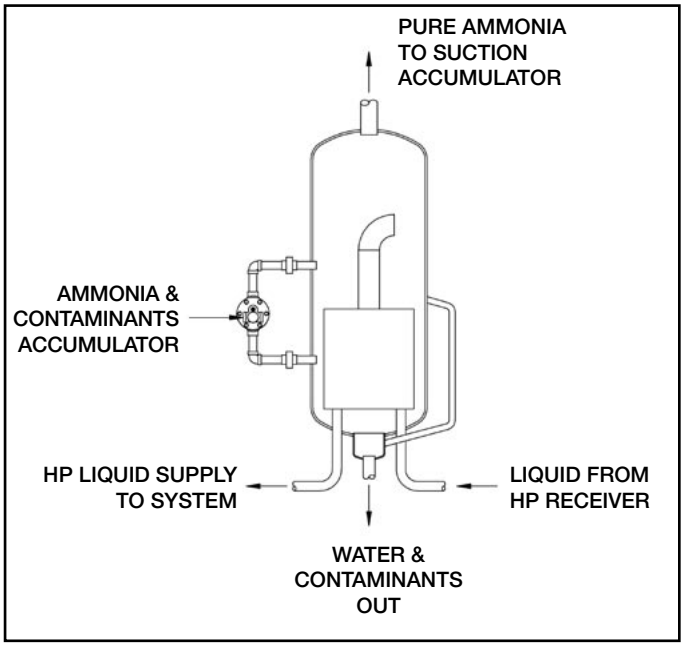
For the same system, the compressor exit temperature will increase as shown in the chart below.

COMPRESSOR EXIT TEMPERATURE INCREASE

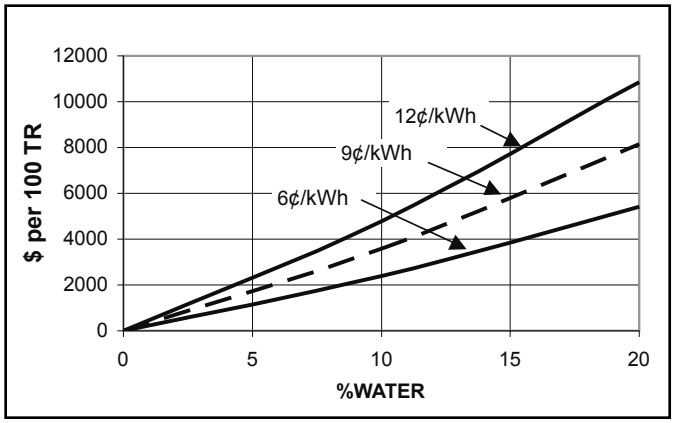
Water Present	0%	10%	20%
Comp Exit Temp	0°F	10°F	23°F

ANHYDRATOR INSTALLATION

While the Anhydrator most typically accepts cold liquid ammonia from the pump separator, it can also draw the ammonia from intermediate coolers where water accumulates.



ENERGY COST DUE TO WATER



ANHYDRATOR ADVANTAGES

LOWER INSTALLATION COST

Because it requires only a simple float valve and a few isolation valves (no special electronic devices or controls), the Phillips Anhydrator keeps the cost of installation to a minimum.

SELF-REGULATING OPERATION

The unique design of the Phillips Anhydrator allows it to operate continuously. It easily handles system upsets without re-introducing water and contaminants to the pump separator after they've been removed.

SHORTEST PAYBACK TIME

Thanks to its low initial cost, the Phillips Anhydrator pays for itself in the least amount of time.

ENERGY-NEUTRAL OPERATION

Unlike many other system cleaners, the Anhydrator uses sensible heat from the high pressure liquid to separate the ammonia from water and other contaminants. Instead of being wasted, the resulting flash gas is now doing useful work: cleaning your system.

VERY LOW MAINTENANCE

Batch-type system cleaners must be monitored and drained at unpredictable intervals. Its self-regulating operation and ability to safely return ammonia to the pump separator make the Phillips Anhydrator virtually maintenance-free. Start it up and let it run. Drain water and contaminants at your convenience. The unit will hold the water and contaminants indefinitely.

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