



## Preventing Condensation

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# Preventing Condensation

Condensation will form on any object when the temperature of the object is at or below the dew point temperature of the air surrounding the object. Dew point temperature is defined simply as the temperature at which water vapor, when cooled, will begin to condense to the liquid phase, so it is the most useful humidity parameter when dealing with condensation problems. Dew point, relative humidity, and temperature are all related. The following table shows some typical temperature and humidity values and their corresponding dew point temperatures:

Air Temperature (°F)	% Humidity	dew point (°F)
(80)	75%	(71)
(80)	45%	(56)
(60)	75%	(52)
(60)	45%	(39)
(35)	75%	(28)

As can be seen from the above chart the difference between air temperature and the dew point can be less than 10 degrees F at high humidity.

The best way to eliminate condensation is to insure that the difference between the air temperature and the dew point is greatest within the limits of the equipment environmental temperature operation. **In most cases the range of 95 to 104 degrees F has been shown to be an acceptable temperature range while being within most commercial/industrial equipment operating range.** Many site managers are under the misconception that thermostats should be set to low temperatures to provide the best cooling for the equipment. The problem with this approach is the cool moist early morning air can result in condensation due to the air temperature being so close to the dew point temperature under high humidity conditions.

The major problem with condensation is not only the water but if other caustic substances are present such as sodium and other caustic chemicals may be activated by the water, causing damage or stress to components. So it is a good practice to eliminate condensation if at all possible.