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Dew point is the temperature at which water vapor in compressed air starts to condense, or change from a vapor state to a liquid. Air becomes fully saturated when it compresses to 100 psig. The compression process adds heat, and hot air can hold more moisture than cooler air, so the moisture remains in a vapor state. If the compressed air is left untreated, the water vapor will condense in the piping system, causing harm to downstream pneumatic equipment and processes. Dryers help prevent this damage.

Dehydrating compressed air is most commonly done with a refrigerated air dryer. Refrigerated dryers remove moisture by chilling compressed air in an evaporator surrounded by liquid refrigerant, and they provide dew points at above freezing (32°F). They are rated based on a Compressed

Air and Gas Institute ADF-100 standard (100°F ambient, 100 psig working pressure, 100° inlet air temperature, 100% saturated air) for testing and rating dryers. A refrigerated air dryer rated for a 42°F pressure dew point will hold moisture in a vapor form unless exposed to temperature below 42°F. If the air is utilized in an environment above 42°F, the water vapor will stay in a gaseous form, and there will be no additional condensation. In general, water vapor is not a contaminant unless it is allowed to condense.