



Dewpoint Measurement Application #2

Heat Treating

- Application** Metal parts are bathed in conditioning atmospheres during heat treat processes. These gases are generally nitrogen or nitrogen-hydrogen blends (HNx). Argon may be used in specialized processes.
- Problem** Oxidation can occur on the metal surfaces which may make the parts unusable. High moisture levels indicate that oxygen is present and may also increase the oxidation effect.
- Solution** Monitor the conditioning gas immediately before it enters the heat treating furnace for high levels of moisture. These would indicate a bad supply of gas or a leak in the system. Continuous or portable dewpoint monitors on the inlet of each furnace warn of an increasing dewpoint. In-line sensors are usually installed in a "sample cell" (extractive stainless steel block) with a continual bleed flow from the gas line, but they can also be inserted directly into a low pressure gas line without harm. The instrument will then transmit a 4-20ma signal to a DCS, or the relay contacts can be programmed to provide an audible or visual alarm.
- Equipment** Any Delta in-line instrument or 4-20 ma dewpoint transmitter type. Options exist for areas with Class 1, Div. 1 requirements, should hydrogen be in use.
- Advantages** All Delta sensors are calibrated to the highest possible accuracy. They are very fast acting allowing a gas shutoff immediately before any product is ruined. All instruments and transmitters are supplied with a free NIST traceable report. This is a requirement when manufacturing MILSPEC parts.