

Argon and Nitrogen in Glove Boxes and Blanketed Chambers

All Moisture Analyzers

Application

Moisture is measured in argon or nitrogen when it is used as a blanketing gas in glove boxes and other blanketed applications.

Problem

The presence of moisture in the blanket gas for a glove box causes serious contamination problems especially when welding or conducting moisture-sensitive chemical reactions. Moisture causes product contamination, unwanted side reactions, and difficulties in quality control.

Equipment

While any of AMETEK's moisture analyzers can be used, the primary requirement of a particular model's sample input pressure specification may limit the model choices available for a specific installation. The exact choice of model will also vary with the purity levels required of the blanket gas as well as the desired packaging and options.

Procedure

The sample gas is usually drawn directly from the glove box's vent port, or directly in the vicinity of the work to be conducted, in order to measure the moisture content of the blanket gas. In addition, the moisture content on the supply gas can be monitored either at the source's tank or at the entrance to an individual glove box.

The target moisture concentrations typically vary from 0.001 to 50 ppmv depending upon application. Detection of an excessive moisture concentration within the supply gas indicates a quality problem with the blanket gas. An excessive concentration within the glove box that does not dissipate as the glove box is vented indicates the presence of either a significant leak or the presence of a source of moisture within the blanketed chamber.

If excessive moisture is detected, corrective action should be taken prior to the start of any moisture sensitive work.

How Previously Handled

Excessive amounts of blanket gas were consumed in a blind attempt to adequately lower the moisture level within the glove box. No attempt was made to actually measure the moisture content of the incoming blanket gas or the gas within the glove box.

Results

The installation of an on-line moisture analyzer allows continuous monitoring of the moisture present in the blanket gas supply or glove box. Poor quality resulting from processing in the presence of moisture can be eliminated



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