

Why TRI Air Testing, Inc. Uses Color Indicator Tubes

TRI Air Testing, Inc. uses one of the recommended procedures listed in the ***Compressed Gas Association Standard CGA G-7.1 2018, Section 5.3*** for the determination of moisture.

TRI specifically uses the section of 5.3 which states:

"An apparatus using a detector tube filled with a color-reactive chemical. The degree of accuracy depends on the precision of the measurements and the analytical bias of the tube."

We have chosen this method because it is the one method that can be used inexpensively on-site to obtain a representative moisture sample under the exact temperature and pressure of use. There is no low cost, scientifically adequate sampling method for taking a representative sample of moisture in air and returning it back to the laboratory for analysis without the possibility of some loss or gain of moisture due to interactions with surfaces and sealants. Of all the components tested for in compressed air, water is the one that fails most often. Because this method allows for an immediate indication of failure there is an opportunity to correct the problem and retest before returning the kit, thus saving time and money.

There are many sound analytical procedures for testing moisture. However, an air sample cannot be transported back to the laboratory containing the same amount of moisture as the actual air from the compressor system unless a heavy and expensive high-pressure cylinder is used. The moisture content can change and the air may measure drier or wetter than the actual air in the compressor system, giving a false result. Thus, TRI's method using color indicator tubes was chosen to allow the moisture level in compressed air to be accurately measured at the time the air was sampled.

Although a $\pm 30\%$ level of accuracy, as specified for the tube, will result in a $\pm 5^\circ$ F variation at a -65° F dewpoint, a properly operating desiccant system should produce air much drier than -65° F. If the moisture content is in the -60° F to -70° F range, then the desiccant is already in need of changing.