Contact: info@applus.com

Bubble Testing

Bubble leak testing is used to find leaks in many different components. The two most common forms of bubble leak testing are the direct-pressure technique and the vacuum-box technique. The direct-pressure technique is conducted by pressurising a component with a gas and then either submerging it in a solution or applying a solution to the outside of the component. If a leak is present, bubbles will form on the surface because of the leaking gas passing through the solution. The vacuum-box technique is conducted on parts that cannot be directly pressurised or where access is not available to both sides of a component. The test is conducted by applying a solution to an area of a pressure-boundary surface and creating a differential pressure across the area, causing the formation of bubbles as leakage gas, such as atmospheric air, passes through the solution.

THE Applus+ SOLUTION

Applus+ can perform bubble leak testing as directed by various codes and procedures or for informational use only to determine if leaks are present.

Target customers

The direct-pressure technique of bubble leak testing can be performed on new or existing piping systems. The piping can be pressurised with either the system gas already flowing through the piping, or by pressurizing the piping with an external gas source (usually compressed air). A solution (similar to soapy water) is then applied to all potential leak paths, such as threaded connections and welds. Leakage is then detected by the formation of bubbles in that location. This type of testing can be performed on any type of piping in any industry from shop air to hydrogen lines.

The vacuum box technique of bubble leak testing can be conducted on a variety of components. One of the most common applications is to test the welds of tank floors, where access is obstructed to one side of the weld. Again, the solution is applied to the area under test and then a vacuum box is placed over that area. A vacuum is then created within the box. If a leak is present, the air from the opposite side of the weld being drawn into the box will lead to formation of bubbles.

Key customer benefits

The performance of bubble leak testing can be beneficial for several reasons. Eliminating leaks from a gas line could be vital to ensuring personnel are working in a safe environment and to preventing a hazardous or dangerous atmosphere that could affect health or cause the release of dangerous gases.
In addition, this testing can validate the presence of leak paths to the ground from a defect in a tank-floor weld. The release of dangerous chemicals could cause adverse effects on the environment.