

Mercury legislation in several states has an impact on mercury switch usage

Currently, mercury-added products are used in a variety of applications. As of today, there is no perfect substitute for mercury in terms of non-mechanical design or reliability of usage. Still, growing environmental concerns over the last 10 years have created several pieces of legislation throughout the country prohibiting many types of mercury products.

In particular, the following states prohibit the use of mercury float switches: Connecticut, Rhode Island, Maine, California, Vermont, and Illinois. New York will prohibit their use effective on January 1, 2008. Mercury always must be properly disposed of, and local codes and regulations followed.

Mercury vs. mechanical float switches

When selecting a float switch, an operator must decide between mercury-activated or mechanically-activated float switches. Considerations include the liquid one is measuring, electrical requirements, turbulence present, and other factors. In most cases, either type of float switch will work satisfactorily.

Mercury-activated float switches

Mercury float switches are typically constructed of a watertight material that is filled with either foam or air to surround the actual mercury tilt switch within. The foam or air provides buoyancy to the float switch, and also serves as additional protection for the mercury tilt switch.

Mercury tilt switches are small tubes with electrical contacts at one end of the tube. When the tube tilts, the mercury collects at the lower end and creates a conductive path to complete the circuit. When the

switch is tilted back, the circuit is broken. These tubes are usually 1" to 1-1/2" long by 1/2" to 3/4" in diam.

The mercury-activated float switch is generally cited as the most reliable, due to its lack of moving parts and absence of mechanical operations. Additionally, it is well suited for hazardous environments where a low voltage operation is required. Mercury float switches are not acceptable for potable water applications. Upon replacement or disposal, mercury switches should be discarded as hazardous material dictated by local codes or regulations.

Mechanically-activated float switches

Mechanical float switches use a similar construction method for the outside shell, and contain a series of mechanically activated parts within the outer shell. Typically, a steel ball is enclosed within an hourglass-shaped cavity, which lets the ball

travel to the lower end of this cavity when the float switch is tilted. This action allows the ball to depress against one or two levers, which activate a micro-switch within the float itself. This micro-switch handles the current and completes the circuit.

While mechanical float switches are generally more vulnerable to impact/shock and will likely fail much sooner than a mercury model due to the moving mechanical parts, they can be very effective in particular situations. They are well suited to turbulent applications and they are the recommended type of float switch for potable water.

Regardless of the type of selection made, float switches are the preferred method of level measurement in today's market. Their ease of use in both installation and eventual replacement coupled with affordable cost make them the first choice for most applications.

