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NIST Launches New Website to Educate Industry About Alternatives to Mercury Thermometers

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As part of a larger effort to reduce the amount of mercury, a potent neuro-toxin, in the environment, the National Institute of Standards and Technology (NIST) has launched a [new website](http://www.nist.gov/pml/mercury.cfm) (www.nist.gov/pml/mercury.cfm) to help industry scientists and engineers decide the best temperature measurement alternative for their purposes. The website also includes information about myths pertaining to mercury and temperature measurement and how to safely package and recycle mercury-containing products.

NIST stopped providing calibration services for mercury thermometers on March 1, 2011. This was motivated in part by NIST's work with the Environmental Protection Agency to eliminate as many sources of mercury in the environment as possible.

According to Greg Strouse, leader of NIST's temperature, pressure and vacuum programs, mercury thermometers are neither a superior nor a standard method for measuring temperature.

"We haven't used mercury thermometers as a calibration standard since 1927 when the platinum resistance thermometer standard was adopted," says Strouse. "Our goal with this new website is to show that there is a temperature-sensing technology that will satisfy their needs as well as, or better than, a mercury thermometer, all without the added liability of containing a neurotoxin that is hugely expensive to clean up if released into the environment."

According to NIST researcher Dawn Cross, industrial scientists commonly object to replacing their mercury thermometers because they have grown accustomed to getting the same answer from their mercury thermometers over the years, even if it is less accurate than can be provided by modern digital thermometers.

"Some people who are used to using mercury thermometers think that they define temperature, and this simply isn't true," Cross says. "Graduations on a piece of glass filled with a fluid can never give as accurate a reading as a digital thermometer, based on how the conductivity of metals change as a function of temperature, something we know and can characterize very, very well."

Cross points out that other thermometers based on the principle of thermal expansion of a fluid, such as alcohol, are not hopelessly inaccurate. In fact, they are as accurate as mercury thermometers and are suitable for some applications that don't require stringent temperature control. For example, alcohol thermometers might be suitable for measuring the temperature of gasoline and other fuels, but they

would be unsuitable for monitoring the temperature of vaccines, the viability of which relies on strict control of their temperature.

Visit the website at www.nist.gov/pml/mercury.cfm for more information about how NIST can help your industry find an accurate, non toxic and environmentally benign alternative to mercury thermometers.

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Link to original article: www.nist.gov/public_affairs/tech-beat/index.cfm