



Commercial Compliance

By Tina Donda

Certification options for commercial treatment systems

Residential drinking water treatment products have a plethora of standards and protocols available to demonstrate that they have been tested and certified to ensure that the materials that come into contact with drinking water are not harmful, the products are structurally sound and the performance reduction claims are accurate. Commercial products were left in the dust, however, and end users do not have a significant amount of guidance within the standards to make the same distinctions about these larger systems.

All hope is not lost for commercial products, however. Today, two standards exist in the U.S. that are widely used to demonstrate compliance to industry standards for these types of products. The first is NSF/ANSI Standard 61, which is used to demonstrate that the materials the products are manufactured with are not harmful. The second is NSF/ANSI Standard 372, which focuses on the lead content in the materials with which the product is constructed.

Material Safety Testing

Material safety testing ensures that products are safe for contact with drinking water. NSF/ANSI 61 covers many types of products, including large commercial systems.

The process of material safety evaluation involves multiple steps. To begin, the manufacturer creates a wetted parts list, which is a breakdown of the system showing each individual component that comes in contact with drinking water. The list also contains other pertinent information, such as the material each part is made from, where each component is made, and the wetted surface area of each component. The completed list is thoroughly reviewed by a toxicology team to determine the appropriate analytical test battery for the product.

The scope of the analytical test battery varies but typically includes metals and organic testing of the water collected from the system during evaluation. Testing for leachable metals is conducted using two different pH exposure waters (pH 5 and pH 10) to ensure that metals do not leach from the

product at unacceptable levels, regardless of the corrosivity of the water. Testing for organic contaminants is conducted using pH 8 exposure water.

Additionally, products containing adsorptive or absorptive media must be tested with and without the media. For extremely large systems that cannot feasibly be transported, samples of each material used to construct the end product may be exposed in vessel at a surface-area-to-volume ratio that represents the same ratio found in the end product.

Material safety testing consists of a conditioning period, followed by an exposure period, when samples are collected and analyzed to determine the concentrations of extractable contaminants. The manufacturer or supplier may choose the conditioning period, which can be as short as one day and as long as 14 days. A 14-day conditioning period is most common and usually requires at least 10 water changes (there may be fewer if specified by the manufacturer) with a minimum of 24 hours of conditioning between changes.

A test system, for example, would be installed and flushed, filled with exposure water, held for 24 hours, then drained and refilled the next day. This procedure is repeated every day for two weeks, but the system could remain untouched for 72 hours over the weekend.

After the 14th day of conditioning, the exposure period begins. At this point, the pH 8 exposure water used for organics extraction must be chlorine free for the exposure period. All water evaluated for material safety is compared to the maximum contaminant levels and maximum allowable concentrations.

In order for a product to meet the requirements of NSF/ANSI 61, the results from each type of exposure water must meet the requirements of the standard. The materials extraction test may seem tedious and over the top, but it helps to ensure that products do not compromise public health and safety.

Lead Content Testing

Lead evaluation and testing is the best way to ensure that materials used to manufacture products meet the

new federal lead law. This law will become effective in 2014, and will restrict the sale of plumbing products into commerce unless the percent lead content is at or below 0.25%.

Under NSF/ANSI 372, a wetted parts list is provided, including all of the same details as in NSF/ANSI 61; however, the wetted parts list is not reviewed by a toxicologist to determine an analytical test battery. This standard is different in that the evaluation is the same, regardless of the material.

If it is required to undergo testing, the material will be evaluated to determine its percent lead content. The standard requires that the end product must not contain a total of 0.25% or more lead content after the weighted average lead content calculation has been completed. While this standard does not indicate whether a product will or will not reduce the concentration of lead in water, it does provide assurance that the materials themselves do not contain harmful amounts of lead.

Product testing demonstrates compliance to the testing protocols found in the standards. Certification goes a few steps further by teaming up test data with annual audits of manufacturing facilities to ensure that the products they turn out meet the same specifications as those that have been tested.

Certification of products also monitors changes manufacturers make to the certified product. Material and supplier changes to previously tested products typically require additional testing to ensure these products remain safe for contact with drinking water. While residential products have many additional options for certification, commercial products are not left with zero options. Using certified products certainly provides benefits over non-certified products. *wqp*

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