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# Meeting Low-Lead Requirements for Valves

*Many manufacturers or distributors of ball, butterfly, gate, check, control, globe, plug, relief, regulator, pinch or diaphragm valves have been or may be required by state or federal law to comply with low-lead requirements. If you have been required by the state to have your valves comply with low-lead regulations, there may be some confusion on where to start and how to proceed.*

By Glen Kosowski

Following are suggestions that will help facilitate a quicker certification as well as help eliminate headaches in the long run with the certification.

First, it is essential to understand the basic information regarding the requirements of low-lead certification and product compliance. The new NSF/ANSI 372 standard, which is in accordance with California AB1953 and Vermont S152, states that pipes or plumbing fittings or fixtures used to convey or dispense water for human consumption for drinking water or cooking shall not be greater than 0.25%. To meet the 0.25% requirement, the percentage of lead content of the product cannot be greater than 0.25% with the use of a weighted average formula. The weighted average is calculated by multiplying the lead content of each wetted component by the proportion of the total wetted surface area represented by that component and summing the results.

## Select Your Materials

One way of helping get quick and easy compliance for a low-lead product is to ensure each component of the product has a wetted surface area with a lead content not exceeding 0.25%. If you are using materials that you can ensure contain a low percentage of lead based on their national or international standardized material specifications, it should help with completing compliance to a low-lead regulation.

If you are using bronze, grades in the Unified Numbering System (UNS) for Metals and Alloys that meet a national or international standardized material specification (UNS copper alloy specification, as an example) in the C87300 and C87600 series have been used in many certified low-lead products.

If you are using brass, grades in the UNS for Metals that meet a national or international standardized material specification in the Alloys C69300, C87500 and C87850 series have been used in many low-lead products.

For parts made out of stainless steel, some common grades used in the drinking water industry are 304, 304L, 316, 316L, 2203, 2205, 2101 and 2304. These are just a few examples of materials known to have low-lead content. It is not a complete list and you should always verify the lead content of all materials that go into products before using them.

As discussed above, always know the materials and grades of materials that are being used in your products. To be in compliance with low-lead standards, you need to evaluate the materials you use. Collect certificates of analysis or compliance that show the composition of the components. Additionally, you can use other methods of verifying composition to check compliance with suppliers. You can screen materials by using an X-ray fluorescence scanner, optical emission spectroscopy, Ar/Spark or scanning electron microscopy/energy dispersive spectrometer. To take it a step further, you can treat and analyze the raw material. Treat the sample by dissolving it in an acid according to an established method (U.S. EPA Method 3050B or equivalent) and analyze it with designated advanced equipment. An inductively coupled plasma spectroscopy (ICP) or ICP/MS (ICP coupled with mass spectrometer) are a few examples of advanced equipment that can be used to analyze the sample. Some or all of these testing methods are available at third-party laboratories.

## Make the Calculations

Another way to be prepared for compliance to low-lead regulations is to know the wetted surface area of the components. With the use of two-dimensional or three-dimensional modeling computer aided design software or other design tools, you can determine wetted surface area for each part or component. There are several off-the-shelf software packages available. One item to keep in mind when determining wetted surface area is that internally threaded products have a wetted surface area that includes 25% of the threaded area.

For products that have liners or coatings used in the wetted surface area, manufacturers and distributors should consider some of the following when preparing for compliance. For liners on which there is a permanent sealed barrier, the lead content of the liner will be used for the calculation of lead content percentage. For coatings, the lead content of the coated substrata should be used for determining the percentage of low-lead content.

In all, regulations are getting tighter and public concern for having products in the market with low-lead content is increasing. There is going to be ever increasing demand for products to meet these specifications in the U.S. and internationally. For manufacturers and distributors of these products, it will be critical to evaluate products and make sure they conform to low-lead specifications. The best way to tackle this task is to be prepared for the requirements and do your research to make the task as quick and easy as possible. If you need more details on the process or compliance to low-lead specifications, it is best to contact a third-party certification body that certifies for low lead. *wqp*

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Researching materials leads to a smoother compliance process