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Down to Low Lead in 2014

## TIME FOR LEAD FREE

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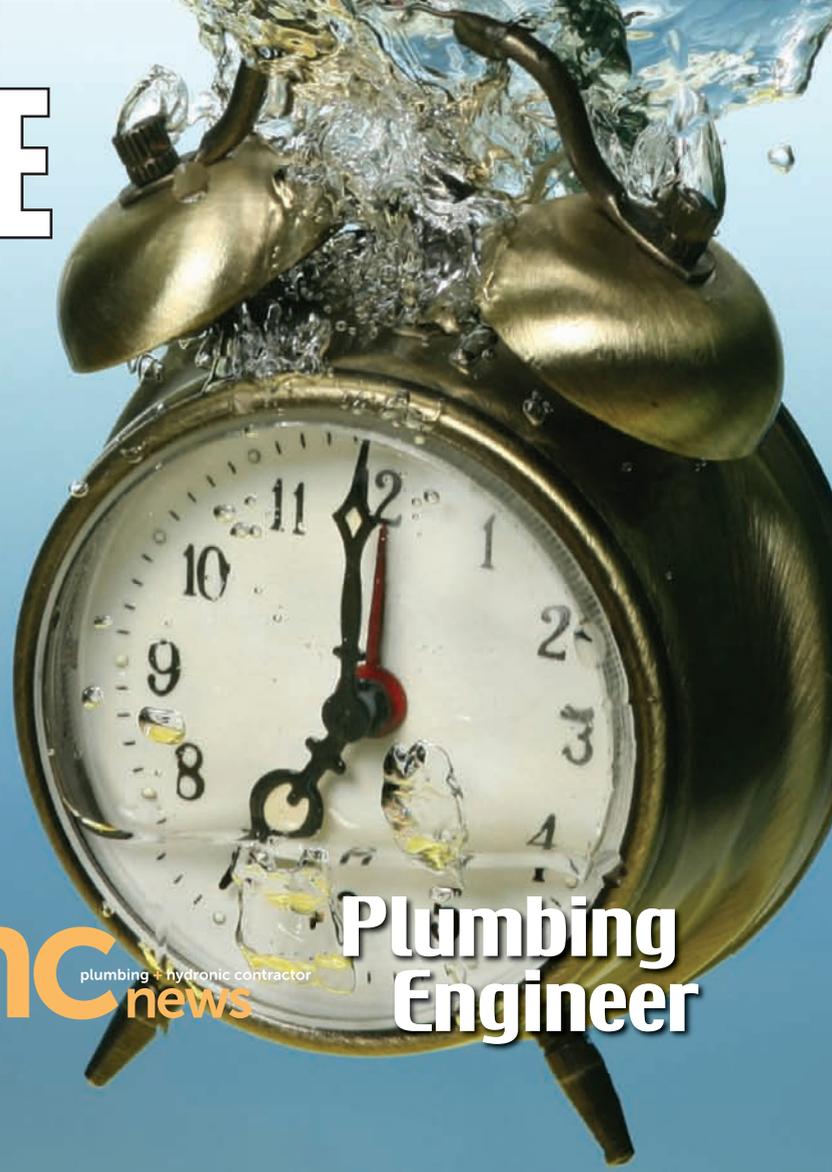
- Legislative update
- The new lead free normal
- Lead free 2-minute drill
- What's next?
- Product roundup!

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13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	18
5 <sup>2</sup> P <sub>1/2</sub> <b>B</b> Boron 10.811	6 <sup>3</sup> P <sub>0</sub> <b>C</b> Carbon 12.011	7 <sup>4</sup> S <sub>3/2</sub> <b>N</b> Nitrogen 14.006	8 <sup>3</sup> P <sub>2</sub> <b>O</b> Oxygen 15.999	9 <sup>2</sup> P <sub>3/2</sub> <b>F</b> Fluorine 18.998	10 <sup>1</sup> S <sub>0</sub> <b>Ne</b> Neon 20.180
13 <sup>2</sup> P <sub>1/2</sub> <b>Al</b> Aluminum 26.981538	14 <sup>3</sup> P <sub>0</sub> <b>Si</b> Silicon 28.0855	15 <sup>4</sup> S <sub>3/2</sub> <b>P</b> Phosphorus 30.973761	16 <sup>3</sup> P <sub>2</sub> <b>S</b> Sulfur 32.065	17 <sup>2</sup> P <sub>3/2</sub> <b>Cl</b> Chlorine 35.453	18 <sup>1</sup> S <sub>0</sub> <b>Ar</b> Argon 39.948
31 <sup>2</sup> P <sub>1/2</sub> <b>Ga</b> Gallium 69.723	32 <sup>3</sup> P <sub>0</sub> <b>Ge</b> Germanium 72.64	33 <sup>4</sup> S <sub>3/2</sub> <b>As</b> Arsenic 74.92160	34 <sup>3</sup> P <sub>2</sub> <b>Se</b> Selenium 78.96	35 <sup>2</sup> P <sub>3/2</sub> <b>Br</b> Bromine 79.904	36 <sup>1</sup> S <sub>0</sub> <b>Kr</b> Krypton 83.80

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## Contents

### From the Editor

- 6** **Ahead on lead**  
Education and awareness efforts paid off and the industry appears ready for lead free. But is the enforcement side ready?

### Legislation

- 8** **Lead free legislative update**  
With enforcement questions still pending, the industry prepares to go low lead.

### Impact

- 14** **The new lead free normal**  
The evolution of lead free legislation and its impact on the industry.

### Cliff D'Angelo

- 18** **Lead free 2-minute drill**  
In order to finish strong, we have to make sure we've completed all the basics in order to prepare for the opportunity to win the game.

### Contractor Perspective

- 22** **Time for contractors to prepare for nationwide lead free regulations**  
For plumbing contractors, this is a critical time to prepare for the rollout of the new requirements on January 4, 2014.

### IAPMO

- 24** **Code perspective**  
Plumbing code development bodies such as IAPMO, publisher of the Uniform Plumbing Code® (UPC), will also need to be proactive.

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## Plumbing Engineer

### Distributor Perspective

- 26** **The journey to lead free**  
A distributor's project plan for the new federal low lead law.

### Health

- 30** **Why remove lead?**  
Exposure to lead can lead to various health problems.

### Infrastructure

- 31** **What's Next?**  
Will the current legislation solve the lead issue or is there more to be done?

### Lead Free Product Roundup

- 32** **Lead free product news**



ILLINOIS FLORIDA MISSISSIPPI PENNSYLVANIA ARIZONA VERMONT DELAWARE UTAH KENTUCKY COLORADO ALABAMA MONTANA MAINE  
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VIRGINIA NORTH CAROLINA NEW JERSEY ILLINOIS FLORIDA MISSISSIPPI PENNSYLVANIA ARIZONA VERMONT DELAWARE UTAH  
KENTUCKY COLORADO ALABAMA MONTANA MAINE TEXAS OHIO ALASKA LOUISIANA MICHIGAN GEORGIA OREGON WISCONSIN  
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## Ahead on lead

By **Jim Schneider, LEED AP**

Editorial director



**W**ith just a few months left before the Reduction of Lead in Drinking Water Act takes effect on January 4, 2014, I am impressed by the overall state of readiness in the plumbing industry. Even in the time since we published the first *Unleaded* supplement in June, things have moved forward by leaps and bounds. Back then, there was still a lot of concern from the folks I talked to about whether awareness was where it should be and whether plumbing professionals at all points in the supply chain were going to be up to speed.

Today, those I spoke to when gathering information for this supplement speak with confidence that the industry is ready

for January 4, 2014. That's not to say there won't be hiccups and that there won't be outliers caught flat-footed, but on the whole it's impressive that the industry was able to shift course so quickly and efficiently.

Ironically, the ones seemingly unprepared for the law to go into effect are the ones responsible for enforcing it. As discussed in the legislative update on page 8, as of this writing, EPA has yet to release its final framework for enforcement. It was expected to be published in early or mid October, but the government shut down slowed an already lagging process. Depending on the length of the shutdown, EPA's document may come to light in late October or early November. We will offer updates on the revised EPA enforcement document online and in upcoming issues of *Plumbing Engineer*, *The Wholesaler* and *Phc News*.

It should be noted that the document we are waiting for from EPA isn't even an official guidance document. It's a set of frequently asked questions. A draft of these FAQs were released in May and EPA did accept public comments through June. As discussed in the legislative update, the industry responded to the FAQs with its suggestions, but what the final document will be is anyone's guess.

What's been interesting is the degree to which the industry has taken hold of it, even in the absence of official guidance from the government. Rather than waiting around, the industry did its part and literally got the lead out. Fortunately, there was a pretty good blueprint to follow with state requirements in California and Vermont. Ultimately, it appears that these will serve as the roadmap for the national version, even if EPA doesn't officially state that.

I just attended the Plumbing Manufacturers International (PMI) Fall Conference in Washington, D.C. PMI was a strong player in the industry's lead free efforts and the lead issue was a big topic at the conference. The U.S. is leading globally on this issue. Speakers from other nations all noted that such requirements haven't yet hit their shores, which is somewhat unusual since Europe and Canada often are ahead of the U.S. on issues like this.

Canada is moving quickly to adopt similar regulations, in part so they don't become a dumping ground for noncompliant U.S. products, but this approach to lead free doesn't appear to have gotten much traction yet in Europe. One speaker from the U.K. noted that their methodologies test the end use water for traces of things like lead, rather than focusing on the materials present in the products. The speaker quipped that, in theory, a faucet could be made entirely of lead, as long as that lead didn't leech into the water.

Of course, many in our industry made the case for that kind of testing and there is a logic to that. It is the end use water that is ultimately of concern. You can have completely lead free faucets and fittings, but if the water is coming in from old leaded pipes, you may still have lead in the water. (See "What's Next," on page 31.)

But, weighted average is the way things went here and the industry stepped in and made it happen. Many feared a desperate scramble to the end, but it appears industry's education efforts and preparedness are paying dividends. We'll soon see if the enforcement side can say the same. ●

## ADVERTISER INDEX

<b>Anderson Metals</b> .....	<b>25</b>
<a href="http://www.andersonmetals.com">www.andersonmetals.com</a>	
<b>Apollo Valves</b> .....	<b>3</b>
<a href="http://www.apollovalves.com">www.apollovalves.com</a>	
<b>Cash Acme</b> .....	<b>IBC</b>
<a href="http://www.sharkbite.com">www.sharkbite.com</a>	
<b>Concast Metal Products</b> .....	<b>20, 21</b>
<a href="http://www.concast.com">www.concast.com</a>	
<b>ICC</b> .....	<b>17</b>
<a href="http://www.icc-es.org">www.icc-es.org</a>	
<b>Kitz</b> .....	<b>5</b>
<a href="http://www.kitzus-kca.com">www.kitzus-kca.com</a>	
<b>Leonard</b> .....	<b>7</b>
<a href="http://www.leonardvalve.com">www.leonardvalve.com</a>	
<b>Merit Brass</b> .....	<b>12</b>
<a href="http://www.meritbrass.com">www.meritbrass.com</a>	
<b>NIBCO</b> .....	<b>19</b>
<a href="http://www.nibcoleadfree.com">www.nibcoleadfree.com</a>	
<b>Oatey</b> .....	<b>9</b>
<a href="http://www.oatey.com">www.oatey.com</a>	
<b>Precision Plumbing Products</b> .....	<b>29</b>
<a href="http://www.pppinc.net">www.pppinc.net</a>	
<b>RectorSeal</b> .....	<b>15</b>
<a href="http://www.rectorseal.com">www.rectorseal.com</a>	
<b>Red-White Valve Corp.</b> .....	<b>27</b>
<a href="http://www.redwhitevalvecorp.com">www.redwhitevalvecorp.com</a>	
<b>Sioux Chief</b> .....	<b>BC</b>
<a href="http://www.siouxchief.com">www.siouxchief.com</a>	
<b>Sloan</b> .....	<b>11</b>
<a href="http://www.sloanvalve.com">www.sloanvalve.com</a>	
<b>Viega</b> .....	<b>IFC</b>
<a href="http://www.viega.com">www.viega.com</a>	
<b>Watts</b> .....	<b>13</b>
<a href="http://www.weareleadfree.net">www.weareleadfree.net</a>	
<b>Zurn</b> .....	<b>23</b>
<a href="http://www.zurn.com">www.zurn.com</a>	



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# LEAD FREE LEGISLATIVE UPDATE

## With enforcement questions still pending, the industry prepares to go low lead.

By Jim Schneider

As we have often seen in the past weeks, months and years, the U.S. federal government often relies on a “we’ll figure out the details later” approach. Creating a framework for lead free plumbing products is a perfect example of this tried-and-true routine.

The Reduction of Lead in Drinking Water Act was passed and signed into law on January 4, 2011 with an effective enforcement date of January 4, 2014. That allowed three years for the industry to prepare, and for the government to come up with a framework for compliance and enforcement. It was assumed this would be plenty of time for all involved.

With just a few weeks left before the effective date, industry has done its part. Product lines have been re-engineered and redesigned, and components are available that comply with the new requirement of no more than 0.25 percent lead on wetted surfaces.

As for the enforcement protocols, the task was given to the U.S. Environmental Protection Agency (EPA) to codify the lead content guidelines by which manufacturers, contractors, engineers, wholesalers and consumers would have to live by. That can have been kicked down the road a few times, and at the time of this writing there is no real official set of rules and the framework remains vague.

### FAQs

The original intent was for EPA to publish an official regulatory guidance. The expectation was that the guideline would mirror or directly refer to the strategy used by the state of California when it went lead free. This would save the effort of developing a new enforcement guideline and also put the industry on familiar ground, since it had already been working with the California rule for some time.

That didn’t happen and instead EPA released a draft set of frequently asked questions (FAQs) in June. Intended initially as a placeholder, these FAQs would give the industry a roadmap to follow until the enforcement guidelines would be codified officially in the next revision of the Lead and Copper Rule, set for 2015.

About a month was given for public comment to the draft FAQs. The final, revised FAQs were set to be released in October, but the government shutdown (and subsequent furlough of most of EPA’s staff) has put the final version on hold. While the final version is, as of this writing, still unfinished, the draft FAQs did appear to be in line with what many in the industry were expecting. All along, the intent

seemed to be to follow the lead of California’s AB1953 lead legislation, and the draft FAQs did appear to do that.

“We went over the FAQs in detail,” recalled Joel Smith, director of New Product Engineering at Kohler Faucets North America. “There was a lot of good information and a lot of points that made good sense. We found some things that were contradictory from one question to another. I know that Kohler, along with many other manufacturers, trade associations and other groups submitted comments to EPA, asking for further clarification on certain points or requesting that some contradictory items be taken out.”

All in all, the plumbing industry seemed to have few specific points of contention about the draft FAQs, but there were some questions about language and terminology, as well as requests for clarification on a number of points. Many individuals and groups submitted their thoughts during the public comment period. Plumbing Manufacturers International (PMI), raised the following six points in the executive summary of its comments to EPA:

1. Since California’s AB1953 has the framework in place for reducing lead in plumbing pipes, fixtures and fittings, EPA should consider following its lead.

2. PMI and the plumbing industry were deeply involved in the creation and development of AB1953 and are familiar with its implementation in reducing lead.

3. EPA should look to the work the NSF and ANSI 61 committees did to develop and approve Annex G, as well as NSF 372. Annex G does not include a test procedure, but NSF 372 has both the test procedure and performance criteria, so it is everything in one document.

4. There were several issues and points important to the fair and equitable enactment of the Act that leave many issues undefined, including industry definitions.

5. PMI pointed out that while labeling is not required by the Reduction of Lead in Drinking Water Act, several answers in EPA’s draft FAQs make reference to labels, which can be confusing. Clarification is needed.

6. The definitions for pipe, pipe fittings, plumbing fittings and fixtures are referenced, but are missing from the FAQs. PMI went through relevant codes (IPC, UPC, National Standard Plumbing Code, etc.) and pulled out definitions for those and other terms and submitted them to EPA.

There also were questions regarding replacement parts. Basically, are there parts that are grandfathered in and what

*(Continued on page 10)*



# Lead-Free Brass Soldering Tips

As the plumbing industry transitions to lead-free brass pipe, valves, and fixtures to meet the requirements of the 2014 Reduction of Lead in the Drinking Water Act, it's important to understand the best practices for soldering in the new 'lead-free' world. Soldering lead-free brass can be a little tricky, but if you follow these basic steps, you should not have any issues in making a solid joint:



- 1** Squarely cut pipe to appropriate length. Ream pipe, smoothing cut edges and removing any burrs.



- 2** Clean all copper pipes and fittings with Oatey high carbon steel brush, abrasive cloth, emery cloth or other abrasive materials, then wipe with a clean cloth.



- 3** Apply a thin coat of **Oatey H-20<sup>95</sup> Water Soluble Tinning Flux** to outside of pipe and inside of fittings. Place the pipe completely in the fitting.



#30143 shown



#23001 shown



- 4** Heat the joint with a propane, acetylene, or MAPP torch, evenly heating the pipe and fitting and **Oatey Silver Lead Free Plumbing Solder**. The most important elements in soldering lead-free brass fittings are using high quality flux (Oatey H-20<sup>95</sup>) and solder (Oatey Silver Lead Free Plumbing Solder) with a wide melt temperature range to insure **EVEN HEAT DISTRIBUTION AROUND THE FITTING** until the solder begins to draw.

**YOU HAVE TO HEAT AROUND THE FITTING – moving the torch to insure that one side of the item being soldered does not get too hot. DO NOT OVERHEAT!**



- 5** Allow the joint to cool naturally. Clean the joint and excess flux with a clean, damp rag. Never shock cool with water as it may result in unnecessary stress to the joint.

**Should you have further questions regarding soldering and fluxing lead-free brass material products, please consult your Oatey Representative or contact Oatey Technical Support at 1-800-321-9532**

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# Legislation

Continued from page 8

needs to live up to the new requirements?

“That’s an open issue everyone is wondering about,” Smith said. “In general, the initial FAQ draft had some good ideas, but there were some things that were confusing and left people scratching their heads, wondering what was meant by a particular word or phrase. It would be a huge undertaking for manufacturers if EPA were to change direction on the replacement parts issue.”

EPA accepted comments through the end of June and set out to update the FAQs. As noted previously, the revision was planned for publication in early October, but at the time of this writing is on hold due to the government shutdown. In recent weeks, it has also become clear that the framework for enforcing the Lead Act will no longer be rolled into the Lead and Copper Rule, as originally planned. To the best of anyone’s knowledge, the revised FAQs will be the official guide for compliance.

“We were told at the EPA Office of Water meeting that they are not going to include the Reduction of Lead in Drinking Water Act in the Lead and Copper Rule, which we were originally told it would be,” explained Stephanie Salmon, vice president of Government Affairs for PMI in Washington, D.C. “It appears at this time they are not going to do anything further except maybe codify that document.”

Since the revised FAQs appear to be the final word on compliance to the Lead Act, the industry’s efforts to clarify and correct them are of particular importance.

“Our goal is to tie up any loopholes and tighten the language,” said Barbara C. Higgins, CEO/executive director of PMI. “I don’t think it’s done on purpose, but when the language isn’t as specific as our engineers speak it, it opens it up for other interpretations that were never intended.”

## Past is prologue

As outlined in the article “Lead Free: A History,” in the previous edition of *Unleaded*, the activity around the creation and enforcement of the federal Reduction of Lead in Drinking Water Act is in many ways a rerun of what happened in California several years ago with AB1953. Much like the federal version, enforcement was left vague at the beginning, but the industry made a legislative push to define a framework that everyone would live by.

“Originally in California, they passed two bills. One bill was the weighted average concentration legislation, and there was also a parallel bill that said we are going to enforce this by using ANSI accredited certification bodies. You will have to go to them and get certified, and that is how we are enforcing this law,” recalled Dr. Norman Hester, Technical Director of the ANSI-accredited, third party testing and certification firm, Truesdail Laboratories in Tustin, Calif. “The federal law only passed the first part. You have to meet the weighted lead concentration, but there is no specific law about how to enforce that.”

The industry became actively involved in the creation of the federal Lead Act, in part to create one standard so that manufacturers, wholesalers, engineers, contractors and con-

sumers wouldn’t have to deal with different requirements and rules for different states. The hope for many was that EPA would ultimately choose to mirror California in its enforcement of the federal law. That would mean one set of practices and certifications, which much of the industry has already been living by for several years because California is such a major market, would apply universally.

On the flip side, many worried that EPA might just invent a completely different mechanism of enforcement or require completely different certifications or marks, which would create more hoops for the industry to jump through. While it appears this worst case scenario has not come to pass – many believe that EPA simply has bigger fish to fry and does not have the bandwidth to develop a whole new certification or enforcement standard – it also hasn’t gone as far as simply referring to California in its guidelines.

## Mark of approval

A recently released EPA document, “How to Identify Lead-Free Certification Marks for Drinking Water Systems and Plumbing Materials” (available online at <http://tinyurl.com/nbyfbbg>) sheds some light on the situation. The document lists a number of certification marks that meet the new definition of lead free, while stating clearly that the law itself does not require these marks. It describes certification marks from CSA Group, ICC Evaluation Services, IAPMO, Intertek Testing Services NA Inc., NSF International, Truesdail Laboratories, Underwriters Laboratories (UL) and the Water Quality Association (WQA). A table shows each group’s approved certification marks and required identifier text, as well as any notes that indicate a product meets the new lead requirement.

While presented as “for informational purposes only” and packaged as a sort of consumer roadmap to compliant products, this document does in many ways give a nod to the California enforcement framework, while not directly adopting it. If nothing else, this document provides a somewhat familiar path for the industry to follow.

“This document at least says to those who have gone through all the issues of meeting the certification requirements of California, Vermont and other states that the federal law is going to accept that data,” Hester said. “It says to look for these marks from these sources to demonstrate that the products are lead free. That’s not exactly legislation, but it is a lot better than nothing. Our clients are reassured that the EPA is going to accept certifications they already have.”

“As far as certification, most of the plumbing fitting manufacturers are comfortable because they have been doing this in California and our products are already third-party certified,” Smith said. “So there really is no concern there. The good news is that there will be plenty of compliant products available, so it’s not as though people are going to be faced with no products to install. At this point I think the bigger issue is gaining clarity on exactly which products must comply with the law.”

(Continued on page 12)

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- NSF/ANSI 372-2011
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- Federal Lead Plumbing Law (U.S. Senate Bill No. S.3874)

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# Legislation

Continued from page 10

## Are we ready?

While the industry is very anxious for the revised EPA FAQs to be published to add final clarity to things, the general sense is that most are ready for

the January start date. Industry organizations and companies have stepped up with preparation and education.

“The industry should take some credit for trying its best to educate,”

Salmon said. “Trade associations and industry groups play a big part in education and should be applauded.”

“A lot of wholesalers now are only carrying lead free products, so if contractors don’t find out any other way, they’ll find out when they go to the supply house,” said Cindy Sheridan, COO of the Plumbing-Heating-Cooling Contractors (PHCC) Educational Foundation. “The only negative I’ve heard is what to do with old product for those who haven’t planned ahead.”

“I believe ASPE members, as well as the plumbing community as a whole, are well prepared for the implementation of the regulation due in large part to the efforts of the Get the Lead Out Coalition,” said Jim Kendzel, executive director/CEO of the American Society of Plumbing Engineers (ASPE). “We recommend the following: start planning now; understand the federal law and any state laws that will affect you and know their effective dates; know what product categories are included in and exempt from applicable laws; confirm manufacturer listings with third-party agencies; prevent bidders from subbing in non-compliant products; and add a compliance note in your specs requiring that any product designed for dispensing potable water meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.”

“We are waiting for the government to finish the FAQs, but we are confident that PMI members are ahead of this,” Higgs said. “We are thrilled that lead free requirements have been harmonized at the federal level. It would have been great to have the federal government articulate exactly how it’s going to be enforced and to parallel California, but the implication does appear to indicate that is how it will go. I think we’re in good shape. The federal lead legislation is the result of collaboration with industry. We will work to ensure that such collaboration will continue to help guide and inform legislation, as well as to provide adequate time for compliance and avoid unintended consequences.” ●

# Get Ready

The advertisement is framed by a green border decorated with various brass fittings. At the top, it says "Be Free with MB" in green. The central image shows a baby in a white shirt holding a glass of water. At the bottom, it says "January 1, 2014" and "MERIT BRASS" in a red and white logo, followed by the website "www.MBLeadFree.com".

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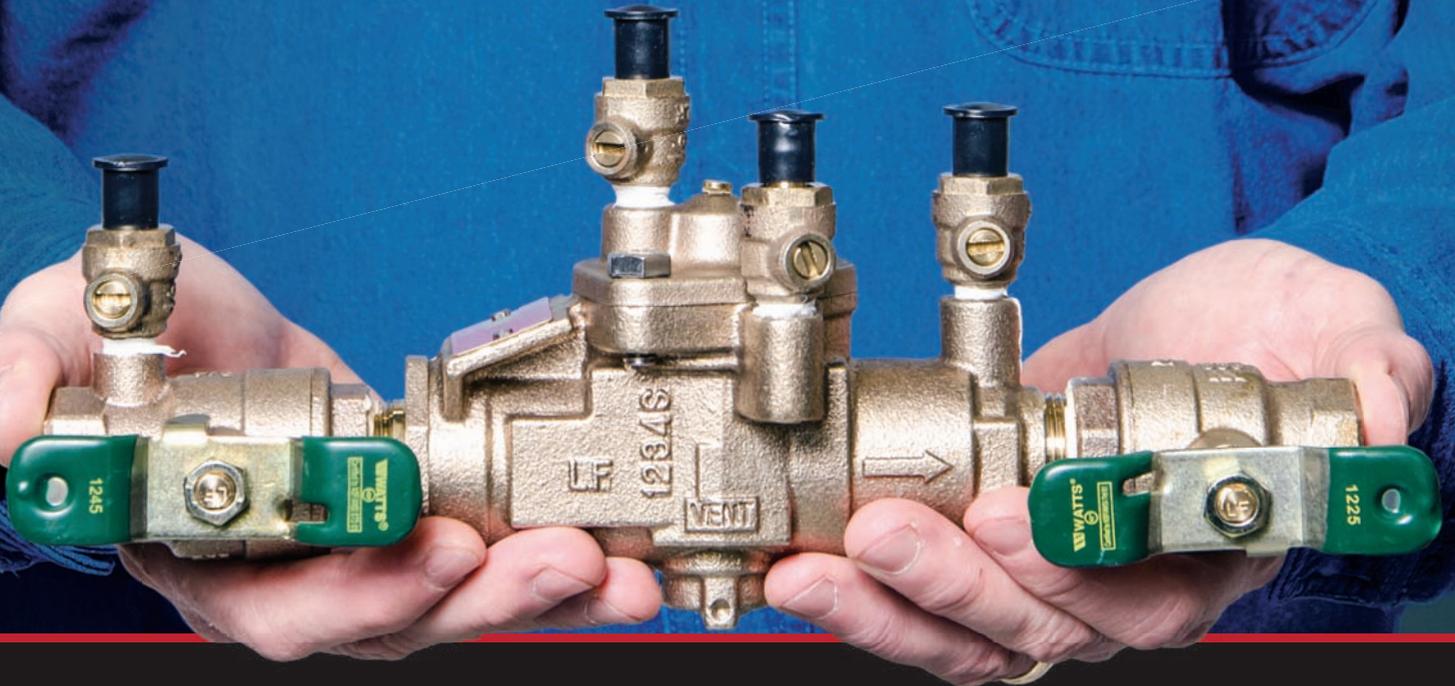
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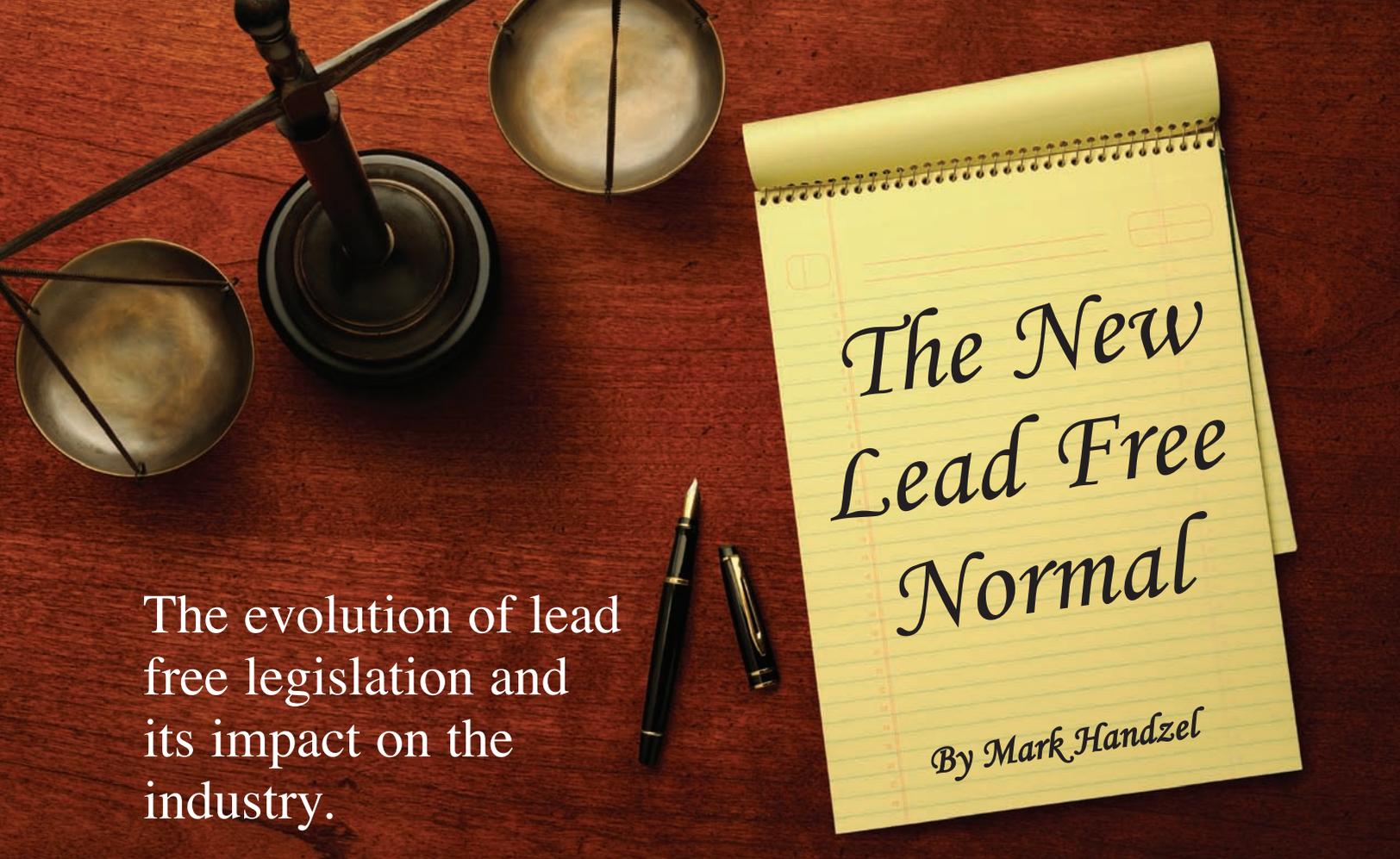
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## The evolution of lead free legislation and its impact on the industry.

**H**umans have a long history with lead, particularly when it comes to the movement and dispensation of water. Lead was used for art objects, pottery glaze and construction as early as 3000 B.C. By the time the Romans built the first aqueduct, Aqua Appia, in 312 B.C., lead pipes were used extensively throughout Rome. Roman plumbarii (plumbers), fashioned ancient pipes in a variety of diameters from fitted and rolled lead sheets.

Even the ancient Romans recognized the potential dangers of soluble lead in potable water applications when residents fell sick from too much lead exposure. Vitruvius, a Roman architect and engineer, made recommendations in his seminal work, “De Architectura,” for the use of terracotta pipes and cooking pots, when possible, instead of lead.

### Closer to home

In modern times, we are aware of the human health concern of lead used in potable water applications, and there is much research to back it up. According to the Centers for Disease Control and Prevention, 100 percent of lead poisoning is caused by preventable environmental contaminants.

With the implementation of the 2011 Reduction of Lead in Drinking Water Act, set to go into effect January 4, 2014, the plumbing industry must make health and safety from lead sources in potable water a priority. Manufacturers, distributors, specifiers and installers will all play a role to address this act by employing the best practices required to help meet and comply with the latest legislation regarding lead in plumbing products.

As the January deadline approaches, there is a lot of information to synthesize and understand about the new legislation, how it evolved, and how it will affect the industry.

### Evolution of water legislation

The original Safe Drinking Water Act (SDWA) was developed and enacted December 16, 1974, and has been the principal federal guideline for drinking water quality in the U.S.

Since the passing of SDWA, there have been a number of amendments, as well as state regulations, concerning the governance of lead in plumbing products and potable water applications. One of the most important amendments to SDWA was added in 1986. This amendment, Section 1417, set the first lead free standard for pipes, solders, pipe fittings and plumbing fixtures. This new section stated that the maximum amount of lead allowed in pipes and fittings as 8 percent and 0.2 percent for solders and flux. Later amendments helped open the door to more robust processes for understanding our water systems, and greater accountability for each participant in the dispensation process.

### Current water legislation

The Reduction of Lead in Drinking Water Act was signed into law in January 2011. As the current amendment to Section 1417 of the SDWA, this act further reduces the amount of lead allowed in plumbing fittings and fixtures.

The redefined standard limits the maximum amount of lead from the previous standard of 8 percent, to a weighted average of no more than 0.25 percent lead with “respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.” The lead limit for solders and flux remains the same as was set in the 1986 amendment – 0.2 percent.

It’s important to note that while the parts and products that meet the new standards are referred to as lead free, they

*(Continued on page 16)*



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# The new lead free normal

Continued from page 14

do contain small amounts of lead. This new legislation sets the maximum allowance of lead to the lowest number required in history and is commonly referred to as being lead free.

The upcoming legislation only affects products used in potable water applications. Products used on nonpotable applications are exempt from the new lead free standards. This includes water used in industrial and manufacturing operations and in irrigation and watering systems.

Further provisions to SDWA include developing a standard method for calculating the lead content in products. The calculation will be considered using the following guideline: "The weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture shall be calculated by using the following formula: For each wetted component, the percentage of lead in the component shall be multiplied by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product to arrive at the weighted percentage of lead of the component. The weighted percentage of lead of each wetted component shall be added together, and the sum of these weighted percentages shall constitute the weighted average lead content of the product. The lead content of the material used to produce wetted components shall be used to determine compliance with paragraph (1)(B). For lead content of materials that are provided as a range, the maximum content of the range shall be used."

The formula will vary for each product depending upon the number of components and the wetted surface area of each component.

Equation: Total % Lead = [Pb%C1 X RWSAC1] + [Pb%C2 X RSAC2] + [Pb%Cn X RSACn]

## Compliance standards

As the deadline to comply with this legislation approaches, it's important to be aware of and understand the testing and compliance standards that will help industry professionals know exactly what they are getting when they purchase plumbing products starting January 4, 2014.

The Reduction of Lead in Drinking Water Act does not require third party certification for products. However, the EPA encourages manufacturers to utilize these certifications in order maintain a system of documented compliance. Certification can also be used as a tool to keep consumers informed and protected.

Published in 1988, "NSF/ANSI Standard 61: Drinking Water System Components – Health Effects," is a performance standard for products that measures contaminants, including lead, that may infect the water at its point-of-use. It contains two restrictions on the levels of:

- Lead contained in contact materials of drinking water products.
- Lead that can leach out of a product into water meant for human consumption.

Another standard, "NSF/ANSI 372 – Drinking Water

System Components," was created to help address standards specific to the lead content evaluation procedure testing requirements and methodologies for material lead content analysis. This standard may be used to certify products under the guidelines of the Reduction of Lead in Drinking Water Act.

Many states have their own requirements for compliance of plumbing components with NSF/ANSI Standard 61, and most require an ANSI-accredited third party certification.

The onus is on manufacturers to determine the best approach and local requirements for third-party certification of their products.

## Industry impact

Preparing for the new lead free standards has been a process. In order to help meet the need of the markets in California and Vermont, which implemented lead free legislation in 2010, Xylem began work in 2008 to make the company's full line of Bell & Gossett (B&G) products lead free.

A significant challenge that any manufacturer, must overcome to make a complete line of products lead free, is to secure a source to pour low-lead. Once the company accomplished this and tested it, the next step was to develop a cataloging system that would make purchasing products easy for the customer. Inscribed on each B&G part is an LF, which indicates that the product is lead free and meets the standards outlined in the 2011 Reduction of Lead in Drinking Water Act.

To help provide peace of mind to customers and distributors, B&G has had its products tested and certified by all the major standards organizations, including NSF, ANSI and the Canadian Standard Association (CSA).

## The new normal

After January 4, 2014, it will no longer be permissible to sell products that do not meet the criteria included in the new legislation. There are no extensions and no exceptions to allow companies to move final stock.

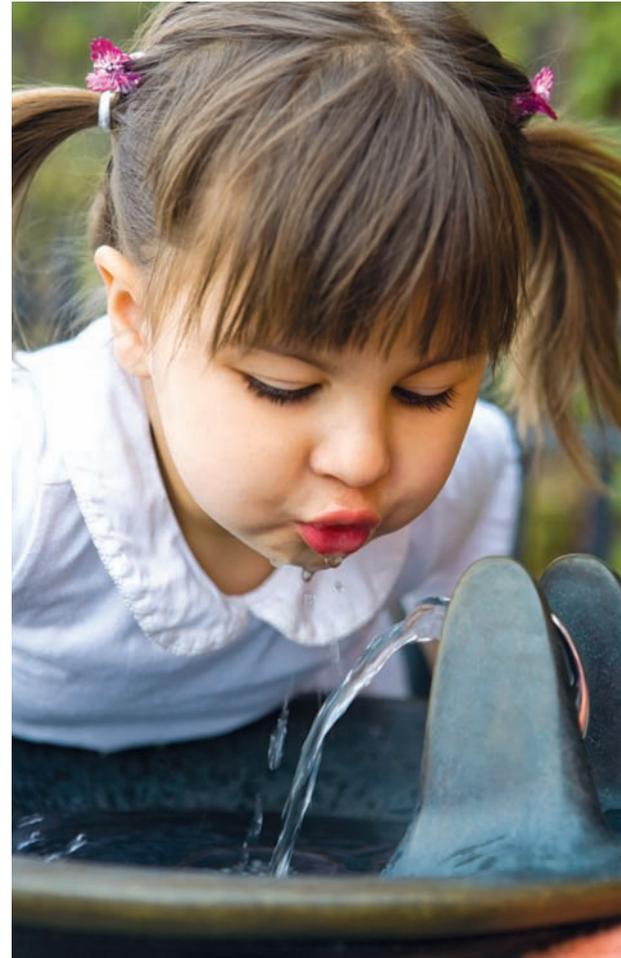
Additionally, since the legislation only requires lead free products be used in potable applications, organizations may choose to manufacture lead free in addition to leaded products. Manufacturers that choose to develop both lines of products will require a disciplined inventory and cataloging system to save on confusion and ensure leaded products are not implemented in potable uses.

Lead has been a part of our lives throughout history and making the changes required by the Reduction of Lead in Drinking Water Act can be an undertaking. But, by continuing to work together to develop and standardize best practices for pipes and plumbing fixtures, our industry will help provide a safer, healthier, future for upcoming generations.

●  
*Mark Handzel, vice president, product regulatory affairs, and director, HVAC commercial buildings, Bell & Gossett, A Xylem Brand.*

# Are You Ready for the New Reduction of Lead in Drinking Water Act?

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By Cliff D'Angelo

# Lead free 2-minute drill

“It’s not whether you win or lose, it’s how you play the game.” This phrase might not be the first thing a coach is thinking of at the end of four grueling quarters of football that results in a loss for his team by just a point or two. Because the only score that counts is the one at the end of the game. The only record that counts is at the end of the season.

As a current Florida high school football coach in my sixth year of coaching, I attempt to instill the importance of finishing strong in my athletes. But football teams aren’t the only ones who are thinking about the 2-minute drill. Those of us in the plumbing industry are in our own 2-minute drill for the new lead free legislation that becomes effective in 2014. Are we going to execute the game plan and finish strong or will we resort to throwing the Hail Mary pass and hope that a miracle happens to win the game?

In order to finish strong, we have to make sure we’ve completed all the basics in order to prepare for the opportunity to win the game. The basics must begin with great team communication in understanding both the legislation and the game plan for a smooth transition.

## Engineers – use the playbook!

Plumbing engineers must meet with product manufac-

turers in order to understand which products have been changed and how that change will affect the performance of their product. All plumbing specifications have to be reviewed for changes in specification information. Meetings should be arranged with plumbing distribution representatives to understand supply constraints of new products and alternative product availability.

Engineers should be made aware of price changes that may affect the budget constraints of a building owner, any increases in labor costs required to install the new product, and they need to review all new plumbing codes to make sure that compliance is kept for all specifications. The plumbing engineer is our offensive coordinator who is always willing to dial up just the right play to keep us in the game.

## Manufacturers - Down! Set! Hike!

Manufacturers understand the new low lead legislation and have enacted a game plan to replace leaded product offerings. Many are still reeling from decreased sales due to the great recession, as well as higher manufacturing costs due to the lead product changeover. A significant amount of leaded product has been returned from distribution to the manufacturer’s warehouse and will likely have

*(Continued on page 20)*



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\*Lead Free refers to the wetted surface of pipe, fittings and fixtures in potable water systems that have a weighted average lead content  $\leq 0.25\%$  per the Safe Drinking Water Act (Sec. 1417) amended 1-4-2011 and other equivalent state regulations.

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# 2-Minute Drill

Continued from page 18

to be scrapped. Confusion still exists on the best way to identify, package and differentiate the new low lead products.

*Contractors must insist on education from manufacturers and distribution regarding the impact of the new low lead legislation.*

The manufacturers that will be most successful will have already met with distribution and presented a detailed game plan, including a proposal to call on major customers and inform them of product changes, inventory availability and pricing changes. The manufacturers are our quarterbacks. All plays begin with the quarterback and that position must execute to perfection for the team to win in the last two minutes.

#### **Distribution – Give me the ball, coach!**

Distribution must take a proactive approach to meet with all manufacturers and receive the game plan. Accurate inventory counts and sales projections should be commu-

nicated to manufacturers, and all active price quotes should be quoted with new low lead products. Product code, bin labeling and literature should be reviewed and changed if needed.

It is essential for all internal education to be completed and external education continued among contractors with clear written communication sent and documented to all customers. Do not allow the customer to rely on the excuse that they were not informed of legislation and product changes, since all verbal communication should be substantiated by written documentation.

Supply a letter detailing the new legislation and product changes to your contractor that can be forwarded to their own customers, helping them to communicate and document changes down the channel. Distribution are our backs and receivers, ready to take the ball and run. They need to have practiced running routes and shedding blocks for us in order to win the game.

#### **Contractors - It all comes down to blocking and tackling**

Contractors must insist on education from manufacturers and distribution regarding the impact of the new low

# You don't have to wait for lead-free,



lead legislation. Communicating the exact dates that old leaded product will be unavailable and when new product will be available is essential. The challenge of how this change affects product performance and installation must be met head on.

Other concerns might include; what jobs do I have quoted that will be affected by product change? What inventory do I have and that I can return to distribution? Have I met with all my distributors and manufacturers to discuss the game plan on how we need to communicate and educate our employees and our customers? Have I sent out written documentation to all customers affected by the new low lead product changes? Does my team understand how the product is marked and packaged so we don't make mistakes accepting and installing the wrong product?

The contractor is our lineman who is at the point of attack and must do the basic blocking and tackling for us in order to win the game. We simply cannot do anything without our big men in the trenches.

Perhaps the primary reason I became a football coach is what I call the "head fake." My team believes that I coach football to win games, but why I really coach football is to develop young men into having compassion and integrity,

to become leaders that will change the world for good, to implement the proper game plan for life.

The plumbing industry has the opportunity to turn this legislative change into its own version of my head fake. We can show the world that we continue to be and always have been a team of professionals that protect the health of our communities. We can illustrate that with proper communication environmental legislation can improve our manufacturing processes, spur product innovation, reduce foreign competition, improve customer relationships and increase profitability.

Let's finish strong and score the winning touchdown. Because it's not whether you win or lose, it's how you make the game plan. Just don't drop the ball! ●

*Cliff D'Angelo is a LEED AP and a 20-year veteran of the plumbing products manufacturing and wholesale industries in sales and sales management, with both the Kohler Companies and Ferguson Enterprises. He is currently principal owner of GREENCLIFF, LLC, providing both LEED and sales consulting services. Visit [greencliff@netbusiness.com](mailto:greencliff@netbusiness.com).*

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# Time for contractors to prepare for nationwide lead free regulations

By Sean McGuire

**T**he national implementation of the Reduction of Lead in Drinking Water Act goes into effect on January 4, 2014. As part of a 2010 amendment to the Safe Water Drinking Act (SWDA), the bill specifies that the lead content allowed in potable water systems be less than 0.25 percent with respect to fittings and fixtures and 0.2 percent with respect to solder and flux.

For plumbing contractors, this is a critical time to prepare for the roll out of these new requirements. Beginning January 4, 2014, you will only be allowed to install new low lead fixtures, fittings, valves, solder and flux on any project, even those that are already in progress.

Recently, the Plumbing Contractors of America published a “Guide to the Reduction of Lead in Drinking Water Act,” which can be downloaded for free at [www.mcaa.org/pca](http://www.mcaa.org/pca). In addition to providing further details about the Safe Drinking Water Act and product examples, the guide offers five recommendations to all plumbing contractors.

**1. Review your inventory** – Some of the plumbing supplies that have a higher lead content can still be used in non-potable systems under the new requirements. Evaluate your inventory and determine which materials can be used for non-potable systems after the implementation date and which must be used before January 4, 2014.

**2. Contact your suppliers** – Fixtures and fittings with the new low-lead content levels are more expensive. On average, low-lead fixtures cost about 20 percent more than those with a higher lead content. When similar laws went into effect in California, Vermont, Maryland and Louisiana, shortages of low lead materials occurred. We are past most suppliers’ return dates for products with high lead content, so those products must be used by the end of the year.

**3. Review upcoming projects and contact plumbing engineers** – If you have projects that start on or after the implementation date, you will need to review the specifications and provide change orders for any items that were specified with the higher lead content. Remember to include projects that could be pushed past the implementation date because of delays in this review. Also, consider pre-purchased materials (including fabrication) that may need to be replaced if the plumbing work is installed after January 4, 2014.

**4. Contact your local plumbing inspectors and code officials** – Although the Environmental Protection Agency (EPA) is overseeing the law, enforcement is being left to local code officials. Contact your local plumbing inspectors and determine how they intend to enforce the new law with regard to projects in progress. Each jurisdiction may be different; some may be lenient during the transition while others may require you to cut out systems and replace them after inspection.

**5. Get product samples** – Based on contractor feedback in states that have already implemented these laws, some lower-level lead materials do not behave the same way as higher-level lead components. Test the materials and talk to contractors in California, Maryland, Vermont or Louisiana to get their perspective since they have been working with these products for a while. ●

*Sean McGuire, LEED AP, is the director of industry programs at the Mechanical Contractors Association of America, Inc. (MCAA). He is the staff liaison to the Plumbing Contractors of America (PCA), which represents the interests of union plumbing contractors on the national level. Visit [www.mcaa.org](http://www.mcaa.org)*



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# Lead free: Code perspective

By Daniel P. Cole



In the previous edition of *Unleaded*, readers were left with uncertainties related to the Reduction of Lead in Drinking Water Act, which takes effect January 4, 2014. These uncertainties were expressed in unanswered questions such as: How will this law be enforceable? Do products require third-party certification? If so, does the third party have to be an ANSI-accredited body? Is labeling required? Do the products have to be marked? Is there an industry standard to determine product compliance?

EPA's answers to these questions are conclusively either "unsure" or "no," as published in the Draft Reduction of Lead in Drinking Water Act Frequently Asked Questions. In the first edition of *Unleaded*, Jim Schneider, editorial director of *Phc News* and *Plumbing Engineer*, stated, "The plumbing industry recognized the need to be proactive in setting a federal standard."

Plumbing code development bodies such as IAPMO, publisher of the Uniform Plumbing Code® (UPC), will also need to be proactive because of the uncertainties expressed above. How so? How can IAPMO and other plumbing code development bodies be proactive in addressing these uncertainties?

To date, there are no EPA regulations requiring manufacturers to certify their products, demonstrating they are lead free. There are no regulations requiring labeling to inform consumers that the products are lead free. However, EPA does encourage manufacturers to do so. There are no known penalties prescribed when this law is violated. EPA only states that one could or may be subject to an enforcement action by EPA, to a citizen suit, or to state enforcement.

Plumbing codes can answer some of these uncertainties by bringing the new federal no-lead requirements within their mandatory provisions. A simple way of doing this is to amend the current maximum lead content provision for water supply pipe and fittings of 8 percent lead to a weight-

ed average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures providing water for human consumption. In fact, the plumbing codes will have to be amended in order to avoid conflict with the new definition of lead free contained in the federal law. Additionally, code development bodies will need to decide whether or not to retain the maximum required 8 percent lead content for exempted products, since the federal law no longer requires it. California has already made this decision as the California Health and Safety Code kept the 8 percent limit for products exempted from the 0.25 percent requirement.

When plumbing codes are amended to comply with the new lead content provision, all plumbing products related to drinking water for human consumption will be required to be third-party certified to demonstrate compliance with the new weighted average. This is because every model plumbing code already requires all plumbing products to be third-party certified to demonstrate compliance with all applicable code requirements. Actually, many manufacturers are already certifying their products as low-lead compliant either voluntarily or because states, such as California, require it. Updated plumbing codes will likely take the pressure off of state and local jurisdictions considering enacting separate low-lead laws, as low-lead limits will be implemented through the normal process of adopting the latest edition of the model plumbing code. This is beneficial because it establishes uniformity in requirements, prevents many jurisdictions from creating conflicting requirements, and levels the playing field for manufacturers.

When plumbing products are third-party certified as compliant with the low-lead requirement, there will be a certification label or marking that accompanies the product for consumer information. Plumbing products already have markings and labels. There are now new labels for low-lead

content that will indicate compliance to the new definition of no lead. The EPA has recently published "How to Identify Lead-Free Certification Marks for Drinking Water System & Plumbing Materials," and lists third-party certification bodies (visit <http://1.usa.gov/15MR1Zn>). This is beneficial as it provides a reliable means of verifying compliance in the field.

After January 4, 2014, plumbing fittings and fixtures will no longer be required to comply with voluntary standards such as Section 9 of NSF Standard 61. This raises the question, are plumbing codes required by federal law to reference a standard for third-party certification compliance? No.

After January 4, 2014, EPA will not regulate compliance to any voluntary standards to the new definition of lead free. The calculation method prescribed in the amended Safe Drinking Water Act (SDWA) will be required. This allows third-party certifiers to determine the most appropriate testing protocol for each product when using the calculation method. Protocols, such as those included in California law or NSF 372, can be used as tools in helping to make this determination.

Bringing the new no-lead provisions into the plumbing codes makes the law enforceable on a local and state level. Field inspectors will be able to look for the identifiers of low lead on products providing water for human consumption. Legal procedures for those violating the new no-lead provisions will be the same as those used for violations of any element of the plumbing code according to state statute. Contested non-compliance may be subject to adjudication on a local level, including fines and court costs.

Amending the plumbing codes to reflect the new no-lead provisions will help a great deal in addressing concerns over enforcement at a local level, product compliance and identification. Amendments to the lead content provisions have already been proposed during development of the 2015 UPC. ●

*Daniel P. Cole is the technical*

*services supervisor for IAPMO. He is a licensed Journeyman Plumber in the state of Illinois and is a member of ASPE, the Illinois Plumbing Inspector's Association and the*

*International Code Council. He is currently the chair of the Pipe Sizing Task Group for IAPMO's Green Plumbing and Mechanical Code Supplement. Email him at [dan.cole@iapmo.org](mailto:dan.cole@iapmo.org).*

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By Robin Hilton

# The Journey to Lead Free

## A distributor's project plan for the new federal low lead law

**O**n January 4, 2014, the new Federal Reduction of Lead in Drinking Water Act goes into effect. This law resets standards on the acceptable lead content for products used in potable drinking water and cooking applications. Earlier state legislation is already in effect in California, Vermont, Maryland and Louisiana, so going national should be easy, right?

Faucet manufacturers made the switch to lead free on most items in 2009 across the board, but with cost differences ranging from 15-45 percent, fitting and valve manufacturers did not move their entire lines over until early this year. The reality is that trying to time the conversion with no realistic outlet for surplus is quite difficult. Ferguson hoped that we might have an outlet with our Wolseley Canada division, but then the Canadian Standards Association (CSA) adopted the new lead criteria as well. They are now facing this project over the next year.

One of my early mentors at Ferguson told me that the path to significant change is a journey and not an event. When I was assigned the project for California AB1953 and Vermont Act 193 in the summer of 2009, little did I know that I was beginning a four-year journey that would involve most of our associates and many aspects of our company. The project scope is daunting, and, for a com-

pany the size of Ferguson, it was overwhelming at first. I drafted a team of experts from across the U.S., and we ended up dividing the project into buckets of work and creating a task force of field associates and specialists at our corporate offices.

### Understanding the legislation

The first task was trying to understand the law, its implications, and the products that are affected. Early interpretation was that the law was just about faucets, but that is simply not case. Our legal team continues to monitor EPA updates regarding certain products, label, and certification requirements, who will enforce the law, and what penalties will be. We are concerned that some of the specifics of the national law will be interpreted differently than the state laws that preceded it. Also, there are still questions to answer, such as what does the "water distribution main gate valves that are two inches or above" really mean? Does it exempt any plumbing system 2 inches or greater, or is it literally just the gate valves that are exempt?

Once we evaluated the law, we then created several large projects to address major tasks. The projects are: Product Identification, Inventory Planning, Process

*(Continued on page 28)*



# Lead Free PEX Ball Valve



**5015AB**

½" - 1" PEX Ball Valve ASTM-F1807 Design

Certified to NSF61-G & NSF372

Body & Ball material CW511L DZR Brass



**5010AB**

½" - 1" PEX Ball Valve ASTM-F1807-99 Design

Certified to NSF61-G & NSF372

Heavy Wall CW511L DZR Brass Body



**5009AB**

½" - 1" PEX Ball Valve ASTM-F1960 Design

Certified to NSF61-G & NSF372

Body & Ball material CW511L DZR Brass

*Other LEAD FREE Products include*

*5020AB (Crimp Full Port Ball Valve)*

*5044AB (Full Port Ball Valve)*

*2417AB (Pump Flange Ball Valve)*

*9517AB (Static Balancing Valve)*

*9527AB (Flow Setter) ... and many more*

**RED-WHITE VALVE CORP.**

# Journey to Lead Free

Continued from page 26

Evaluation, Customer Focus, and Training. All of these projects include trained associates from across the country who have been assigned specific tasks to complete and evaluate. There are at least 200 associates that have been actively involved with the projects since inception and many more are joining the project as we finish up our inventory transitions.

## Product identification

Perhaps the most difficult project was the product identification phase. Since we have customers involved in diverse businesses, we had to review our entire product file for anything that could be used in potable water. We surveyed all of our supply partners to verify: (1) whether or not they have products affected by the law, (2) how they are packaging/identifying products, (3) whether or not they certified, and (4) how to obtain cross reference information. There was a lack of awareness, even with our suppliers, in 2009 about the law and what should be included. Ferguson has a product file of more than one million active items and reviewing the products has been a huge undertaking.

Perhaps the most difficult project was the product identification phase. Since we have customers involved in diverse businesses, we had to review our entire product file for anything that could be used in potable water.

Once we had the information from our suppliers, we then had to figure out a way to identify the products across our systems. Internally, we changed descriptions to help associates understand what products were affected by the law. Products were identified as either Compliant, Lead Free, Lead Free/Not Certified, Not for Potable Use, or Non-Compliant. Additionally, we needed to create some sort of identifiers for our e-business customers who are selecting their own products online. Since there is no industry standard for identification or specification, we created our own logo and disclaimers.

One particular challenge has been managing vendors that made their product lead free as part of a running manufacturing change without changing the part number. This forces us to physically inspect all of these products to eliminate the non-compliant products and sell, return, or dispose of them prior to the implementation dates.

The other major challenge has been trying to determine exactly where products, such as valves, are being installed. After we sell the product to our customer, there is not a data point that captures the application. For products that can be used in both potable and non-potable

applications, it is difficult to determine the split.

## Inventory planning

Hand-in-hand with the product identification project is the inventory planning project. Each supplier has differing product implementation and availability schedules. The entire industry wants to sell through their existing inventories and convert to the new product as seamlessly as possible. Ferguson meets repeatedly with our suppliers in person and via conference calls to keep the transition on schedule. We share conversion strategies and time frames. This inventory-planning project has been a great collaboration opportunity with our key suppliers.

I feel confident about Ferguson having a full line of lead free products by implementation date, but this has been quite challenging for our procurement and supply chain associates. Our D.C. network has helped us consolidate the supplier purchases and notify the field of the optimal time to transition product lines.

Our counter locations will be lead free to help eliminate product selection errors by our customers and associates. The only exceptions will be locations engaged in the HVAC and Industrial businesses. If any non-compliant product needs to stay at the counter, our locations will be required to segment that product into one area with warning signage. At this time, we still plan to carry some of the products that are not for potable use. They will be stocked in our warehouses and distribution centers. This strategy is subject to change as the industry converts and we are able to determine the real demand for these products.

## Process evaluation

The process evaluation project requires discipline from our operations, sales and warehousing teams. Given the risks associated with failing to provide customers with the right product for the right application, it was important to make sure we addressed our operational processes, especially those involved in returns and future shipping orders. Our headquarters team has worked closely with key field associates to vet the processes to examine return material, set realistic deadlines, and review open orders and bids for our customers that contain non-compliant product. The goal is for this to be a “non-event” for our customers. Internally, some of this work is quite challenging as there is no one way to identify lead free products, and each supplier did it the way that made sense for them. For instance, the plumbing valve community seems to be drifting to white handles to easily identify lead free products, but much of that is still in process.

## Customer focus

Ferguson has a diverse customer base, and we work hard to ensure that we are able to offer it products at a fair market price with quick availability. We also want to help our customers understand the law and limit their risks as well. For customers that agree to receive emails from us,

our marketing team has sent multiple communications to promote awareness of the law. We also created a 25-minute customer training presentation to further educate our customers about the law and how Ferguson is reacting to it. We have actively participated at national and local association meetings to assist in training. Many of our associates are holding live meeting calls or local training events to assist in education.

Awareness of the law is critical to minimizing customer risks. At the same time, we have to make sure that Ferguson is also in full compliance with the law. Accordingly, Ferguson will not ship non-compliant products to a customer for installation in potable water applications after December 1, without a prior conversation with the customer assuring us that the customer understands the law and will conclude the installation prior to the effective date. We are also training our associates to ask our customers where products are being used in order to determine whether or not the product needs to be compliant. Ferguson has a low-lead resource site for additional information. It is regularly being updated with industry information.

### Training

In addition to the customer training, we also needed to train our associates. Over 13,000 associates have taken the basic training for lead law awareness. Our lead law team sends out weekly communication bulletins targeted by job description. Our intranet features monthly articles on specific topics, and we have developed more in-depth training for our sales and management teams.

The time is running out for our customers and associates to get ready for the conversion to the new low lead standards. I would love to tell you that our project is complete, but the reality is that we are on a journey and each day we discover other paths to consider. Ferguson will be ready and will adjust our plans as needed to benefit our customers and stockholders because they are our true measure of success. We will arrive at the final destination on January 4, 2014, but what other paths will open from there? Remember that getting the lead out of your drinking water is not limited to just changing your faucet. ●

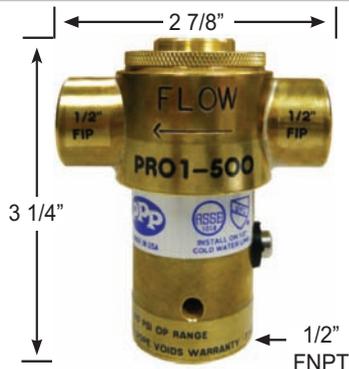
*Robin Hilton is senior category manager-rough products, with Ferguson Enterprises.*



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# Why Remove Lead?

Exposure to lead can lead to various health problems.

By Jim Schneider

We have discussed, at some length, the various efforts of legislators, manufacturers, engineers, wholesalers and contractors to take lead out of the equation of our drinking water systems. But, why? What is it about this seemingly innocuous metal that has inspired such a drastic change in the way plumbing components are made, sold and installed?

Lead has been a part of plumbing systems for centuries. The word “plumbing” itself comes from the Latin word for lead, “plumbus.” The material was attractive for use in water delivery systems because of its balance of strength and malleability. But, as time went on, the health dangers of lead became increasingly apparent and it became clear that its use in plumbing systems should be minimized as much as possible.

We have grown accustomed to hearing about lead as a poisonous boogeyman, but exactly what makes it so bad? In response to our first *Unleaded* supplement, we received letters asking that very question, so we thought we would take a moment to examine why lead exposure is something to be minimized and avoided.

According to a 2011 report titled, “Evaluation of certain food additives and contaminants,” by the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), lead exposure is associated with a range of negative health effects. These effects include neurodevelopmental effects, impaired renal function, hypertension, impaired fertility and birth defects.

The study conducted by this joint group, known as Joint Expert Committee on Food Additives (JECFA) found that lead is exceptional compared with other chemical hazards. According to WHO’s 2011 report, “Lead in Drinking Water,” the lead in drinking water rarely comes from natural sources. Instead, it comes from the corrosive effects of water passing through plumbing, fittings, service connections or solder that

contain lead. The amount of lead dissolved from the plumbing system depends on several factors, including pH, temperature, water hardness and standing time of the water, with soft, acidic water being the most solvent.

While the negative impacts of lead are serious business for anyone, lead can cause the most damage to infants and children, who are particularly sensitive to its effects. Lead is a cumulative substance in the body and builds up over time as exposure to the material continues. This is why the industry has gone out of its way to limit exposure to consumers as much as possible.

Current wisdom suggests that levels of lead in the bloodstream should be kept below 10  $\mu\text{g}/\text{dL}$ . For children or women who are pregnant or considering having children, the level should be at or below 5  $\mu\text{g}/\text{dL}$ . Elevated levels of lead in the human body can increase blood pressure, which can increase chances for a heart attack or stroke. It can also decrease brain and kidney functions.

Lead enters the human body primarily through inhalation or ingestion (as with drinking water). Once in the body, it can collect in the blood, soft tissues or bone. About 15 percent of ingested lead is absorbed into the body. It has a half-life of a few weeks in blood, a few months in soft tissues and several years in bone.

While dangerous levels of lead poisoning are seldom reached through commonplace plumbing systems and drinking water, it is important to note that no amount of lead is considered desirable in the human body. The best way to minimize the potential damaging health effects of lead is to limit exposure as much as possible.

The standards set by the Reduction of Lead in Drinking Water Act all but eliminate what little lead was left to be found in plumbing pipes, fixtures and fittings. There is still work to be done in replacing aging infrastructure, but the plumbing industry stepped up to do its part in ensuring public health and water safety for all. ●

# What's Next?

Will the current legislation solve the lead issue, or is there more to be done?

By Jim Schneider

The plumbing industry has been working to minimize lead for decades, and this current legislative action has been in the works since 2006. But, will the enactment of the Reduction of Lead in Drinking Water Act on January 4, 2014 finally put an end to the struggle?

From the standpoint of the pipes, pipe fittings, plumbing fittings and fixtures that are installed in homes, offices, schools and buildings of all kinds, this may come close to wrapping things up. The risks posed by current levels of lead allowed in these products are negligible, and going any lower may be a practical, if not a physical impossibility.

“At 0.25 percent lead or less, we’ve squeezed about as much out as we can,” explained Joel Smith, director of New Product Engineering at Kohler Faucets North America. “We’ve reached a point of diminishing returns with these products. If we’re serious about reducing lead in drinking water, it’s time to focus on products that are decades old and on aging infrastructure because the new products being installed are no longer an issue.”

“I think the EPA realizes you can’t go much lower than 0.25 percent lead and that it is a reasonable level,” explained Stephanie Salmon, vice president of Government Affairs for Plumbing Manufacturers International (PMI) in Washington, D.C. “We made it clear in our discussions that we’ve engineered as much out as we are going to get out. I think they are satisfied with where we’ve come on this and recognize the water utility side, with its old infrastructure, is where where they should be looking next.”

While the focus has been on whittling out already small levels of lead from pipes, fixtures and other plumbing products, the aging public infrastructure that feeds water to most homes and businesses often can contain significantly higher levels of lead than anything installed in individual buildings.

“There are still some communities around the country where the potential of lead contamination is significant, due to old and deteriorating infrastructure,” said Jim Kendzel, executive director/CEO of the American Society of Plumbing Engineers (ASPE). “I believe we will be seeing a significant shift and allocation of resources to start addressing our outdated water delivery infrastructure, both to save water and energy, and to provide an increased level of pro-

tection from contamination.”

## Infrastructure

To make a serious effort to reduce or eliminate lead from the end product drinking water that comes out of people’s taps would require addressing the nations’ water infrastructure. That is a huge – and expensive – elephant in the room. It is not uncommon to find service line pipes in communities across the U.S. that are decades, and even a century, old. It’s safe to assume that lead requirements were not nearly as strict when those were put in. But to gut and replace those systems requires an enormous public investment of money and time, not to mention the general inconvenience of torn up streets and communities. Everyone knows this issue needs to be tackled, but in an era of tightening public budgets, the appetite to deal with this may not be there.

The plumbing industry came front and center in the lead debate in California because there was a general acknowledgement that something needed to be done. It became clear early on that the attention was going to be focused on the plumbing industry, rather than on things that would require great public investment, such as infrastructure. Knowing it was coming, the industry jumped in and got involved in developing rules for California, and then made the case for applying the same standard nationally to create clarity and a level playing field.

“Our plumbing manufacturers championed the effort to implement the California law nationwide,” said Barbara C. Higgins, CEO/executive director of PMI. “They are well-prepared. Now it’s time to consider the whole delivery system and infrastructure, whether monitoring lead levels in water or controlling leaks to maximize water efficiency.”

With the plumbing industry having stepped up in all but eliminating lead from their products and components, safe drinking water advocates will have to, at some point, turn again to the dangers posed by outdated and outmoded systems found in utilities across the country. This applies not only to lead content, but also to other chemicals leached from old pipes, and to leaks and overall inefficiency that plagues the system.

*(Continued on page 32)*

# Lead-free Products



## Ball valves

Merit Brass recently added two-piece flanged end 150# and 300# ball valves to its stainless-steel valve offering. Design features include built-in ISO 5211 mounting pad for easy automation, anti-static devices for ball-stem body, blowout-proof stem, pressure balance hole in ball slot and casting boss on body for draining. **Merit Brass.**

[www.meritbrass.com](http://www.meritbrass.com)



## Sensor faucets

Sloan's BASYS® sensor faucets are lead-free and meet the specific needs of all types of commercial applications. The BASYS line, which includes hardwired, as well as battery-, solar- and turbine-powered models, offers component interchangeability so customers can switch features as their requirements change. A healthcare center, for instance, can easily upgrade a BASYS with an LCD display showing a countdown timer to encourage hygienic hand-washing. **Sloan.**

[www.sloanvalve.com/BASYS](http://www.sloanvalve.com/BASYS)



## Reduced pressure principle assembly

The 375XL delivers the lowest life-cycle costs in the industry with a savings of 75 percent or more by reducing labor time and lower repair kit costs. The removable pressure vessel can be replaced in seconds, significantly decreasing water system downtime. Visit [www.zurn.com/lead-free](http://www.zurn.com/lead-free) or 1-855-ONE-ZURN to learn how Zurn is leading the industry in lead-free conversion. **Zurn.**

[www.zurn.com](http://www.zurn.com)

# Infrastructure

*Continued from page 31*

"The plumbing industry has its act together and has done everything it can do, but you have to look at the whole system," Higgins continued.

## Easier said than done

Even if everyone knows that updating old water infrastructure is vital to preserving public health, it is by no means a simple solution. Not only do funding and logistics present seemingly insurmountable hurdles, there are physical challenges as well. As some municipalities who have attempted to tackle this issue have discovered, trying to step forward may actually send things backward.

Perhaps the most famous example of this occurred in Washington, D.C., after reports in the early 2000s cited unsafe levels of lead in drinking water in the District. Efforts were made to do partial pipe replacement of lead service lines. While the intent was certainly good, the results weren't as positive. Partial pipe replacements can physically shake loose lead fragments that have built up and been dormant in the pipe and drive them in to the water of homeowners. So in this case, efforts to update service lines and reduce the risk of lead contamination actually had the opposite effect and drove up levels of lead in the drinking water of those impacted.

A similar situation is playing out currently in

Chicago. Mayor Rahm Emanuel has pushed to speed up the replacement of the city's aging water mains and increase the number of water meters installed, both of which EPA has linked to possibly increasing the amounts of lead found in tap water. Like in D.C., physically disturbing the old lead lines appears to have shaken particulates loose and raised the overall level of lead in the water. The installation of leaded systems decades ago continues to cause problems and raise challenges in cities all around the country.

In spite of the challenges, ways must be found to improve and update the nation's water infrastructure. Both in terms of quantity (enormous amounts of water are lost in leaks in old infrastructure) and quality. If we as a society are serious about delivering safe water these are issues that must be addressed.

"It's hard to go there because there is such an expense associated with it and it's not an easy thing to do, but we've gotten to a point where we have gone as far as we can with end point fittings and new products being installed," Smith said. "If we want to attack it further we have to start updating some of the aging infrastructure and plumbing systems to bring them up to modern standards." ●



## ICC-ES product evaluation

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[www.icc-es.org](http://www.icc-es.org)



## Fittings

Complete line of lead free fittings are available in copper, 316 stainless steel, Zero Lead bronze, Eco Brass, and high-performance polymer, which already meet the upcoming lead free regulations. Proprietary lead free alloy was specifically formulated to be superior for Zero Lead press applications. **Viega.**

[www.viega.com](http://www.viega.com)



## Lead free alloys

GreenAlloys™ is the next generation of environmentally friendly alloys and materials. The lead content of GreenAlloys™ is extremely low, often as low as 0.05 percent. Concast provides this selection of products that do not pose the health risks that are commonly associated with lead. Its wide selection of lead free alloys offer exceptional lubricity, tightness, wear, strength, hardness and machinability. **Concast.**

[www.greenalloys.com](http://www.greenalloys.com)



## Soldering flux

The Nokorode Aqua Flux is a paste soldering flux certified to NSF/ANSI 61 Annex G in compliance with AB 1953 requirements. It is suitable for use with the new silicon family of metal alloy as well as other low lead brass products being introduced into the market. Aqua Flux has been formulated for use with the "low lead" brass products to help ensure proper flow of solder and a solid joint. The smooth creamy paste formula allows easy application that will not run or drip off acid brushes, pipes or fittings during application. It pre-cleans the joint and has quality wetting ability. Suitable for use with 95/5, 60/40, 50/50 and 40/60 solder and available in 2 oz., 4 oz. and 1 lb. sizes. **Rectorseal.**

[www.rectorseal.com](http://www.rectorseal.com)



## Full port valve

The lead free K-Press is designed for the water service industry. The two-piece, full port valve provides a fast and safe installation for commercial/residential applications. It is UL certified to NSF 61 Annex G and available in sizes ½ to 2 inches. **KITZ.**

[www.kitz.com](http://www.kitz.com)



## PEX ball valves

The 5015AB is a ½ to 1 inch PEX Ball Valve. It is an ASTM-F1807 design and certified to NSF61-G and NSF372. It features Body & Ball material CW511L DZR Brass. The 5010AB is a ½ to 1 inch PEX Ball Valve with an ASTM-F1807-99 design. It is certified to NSF61-G and NSF372 and features Heavy Wall CW511L DZR Brass Body. The 5009AB is a ½ to 1 inch PEX Ball Valve with an ASTM-F1960 Design. It is certified to NSF61-G and NSF372, and features Body & Ball material CW511L DZR Brass.

**Red-White Valve Corp.**

[www.redwhitevalvecorp.com](http://www.redwhitevalvecorp.com)

**MORE LEAD FREE  
PRODUCTS ON PAGE 34**

# Lead-free Products

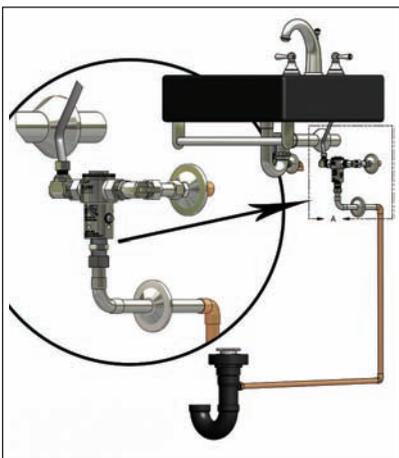
Continued from page 33



## Mixing valve

The Leonard ECO-MIX™ 170-LF and 270-LF point-of-use mixing valves offer the lowest minimum flow of any ASSE 1070 device at 0.25 GPM. Plus, both units are also third-party approved as lead free. With some faucet configurations being used down to 0.35 GPM, that means only Leonard valves can handle your most demanding low-flow environments; with the added reassurance of lead free provisions. With Leonard point-of-use valves, there's no limit. **Leonard.**

[www.leonardvalve.com](http://www.leonardvalve.com)



## Under lav trap primer valve

The under lav trap primer valve comes complete with 5/8" comp. angle stop, 3/8" comp. lav supply, 5/8" comp. discharge fitting, 1/2" ID make up line and wall mount escutcheon. The entire assembly is chrome plated for an attractive, under lav installation. **Precision Plumbing Products.**

[www.pppinc.net](http://www.pppinc.net)



## Lead free ball valves

The Apollo® International 95ALF Lead Free forged brass stop and waste ball valves combine reliable operation with maximum economy. Ideal for plumbing or hydronic systems where draining is required. IAPMO listed and ANSI 3rd party certified Lead Free. **Apollo.**

[www.apollovalves.com](http://www.apollovalves.com)



## Lead Free Backflow Prevention Assemblies

Watts has announced two new Lead Free backflow prevention products: The LF919 Reduced Pressure Zone Assembly and the LF719 Double Check Valve Assembly. The LF919 Reduced Pressure Zone Assembly and the LF719 Double Check Valve Assembly are designed to protect potable water supplies by preventing the reverse flow of contaminated water. Lead Free bronze body construction ensures compliance with the new national Lead Free law. The LF719 and LF919 feature two poppet-style check valves, replaceable check seats, and separate access covers for each check for quick servicing. The LF919 is designed for use on cross-connections in health hazard applications and features an intermediate relief valve. **Watts.**

[www.watts.com](http://www.watts.com)



## PowerPEX fittings

PowerPEX is Sioux Chief's complete line of No Lead fitting systems. Sioux Chief is the only manufacturer offering all three major PEX fitting systems – F1807 Crimp (and F2159), F1960 Grip and F2080 Lock (hybrid systems as well). Sioux Chief brings you the quality parts and fitting systems at the right price, with the right warranty. **Sioux Chief.**

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[www.nibcoleadfree.com](http://www.nibcoleadfree.com)

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- ✓ All Lead Free SharkBite products are marked by a “Delta” symbol to differentiate between standard and Lead Free material.
- ✓ Member of the Get The Lead Out Plumbing (GTLOP) Consortium, formed to help assist with educating distributors and contractors in the industry with the Lead Free transition.



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