

Safe Drinking Water Act: 2014 Requirements for Lead in Plumbing Products

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Disclaimer

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Description

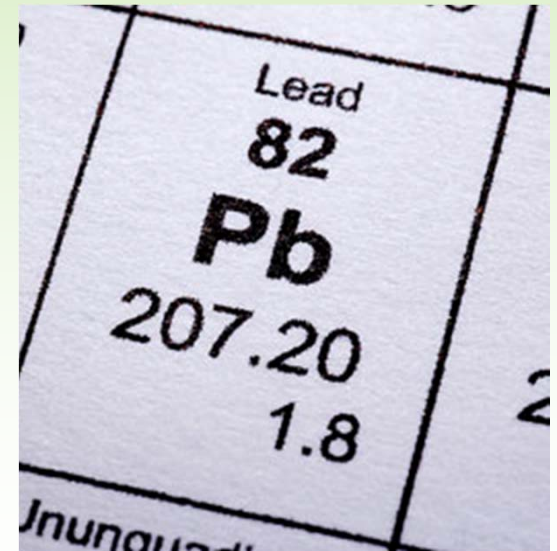
- Overview of the critical concepts of the "Reduction of Lead in Drinking Water Act"
 - Focuses on the role of the code official implementing the law.
 - **Note: References to FAQ in the document are to the [Summary Of The Reduction Of Lead In Drinking Water Act And Frequently Asked Questions, U.S. EPA, October, 2013](#) which was recently released in October, 2013.**
- Brought to you by the [ICC PMG Membership Council](#) and [ICC Evaluation Service](#)



Why Lead in Plumbing?

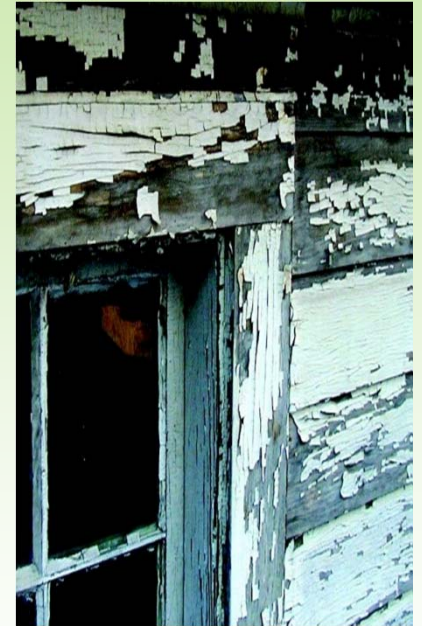
Lead has a long association with plumbing.

- Term *plumbing* is based on the Latin word “*plumbum*”
 - Wide use for plumbing pipes and fittings and solder even into modern times.
- More recently it is used as an alloying element in cast bronze and brass
 - Improves machinability
 - Reduces porosity
 - Resistant to corrosion

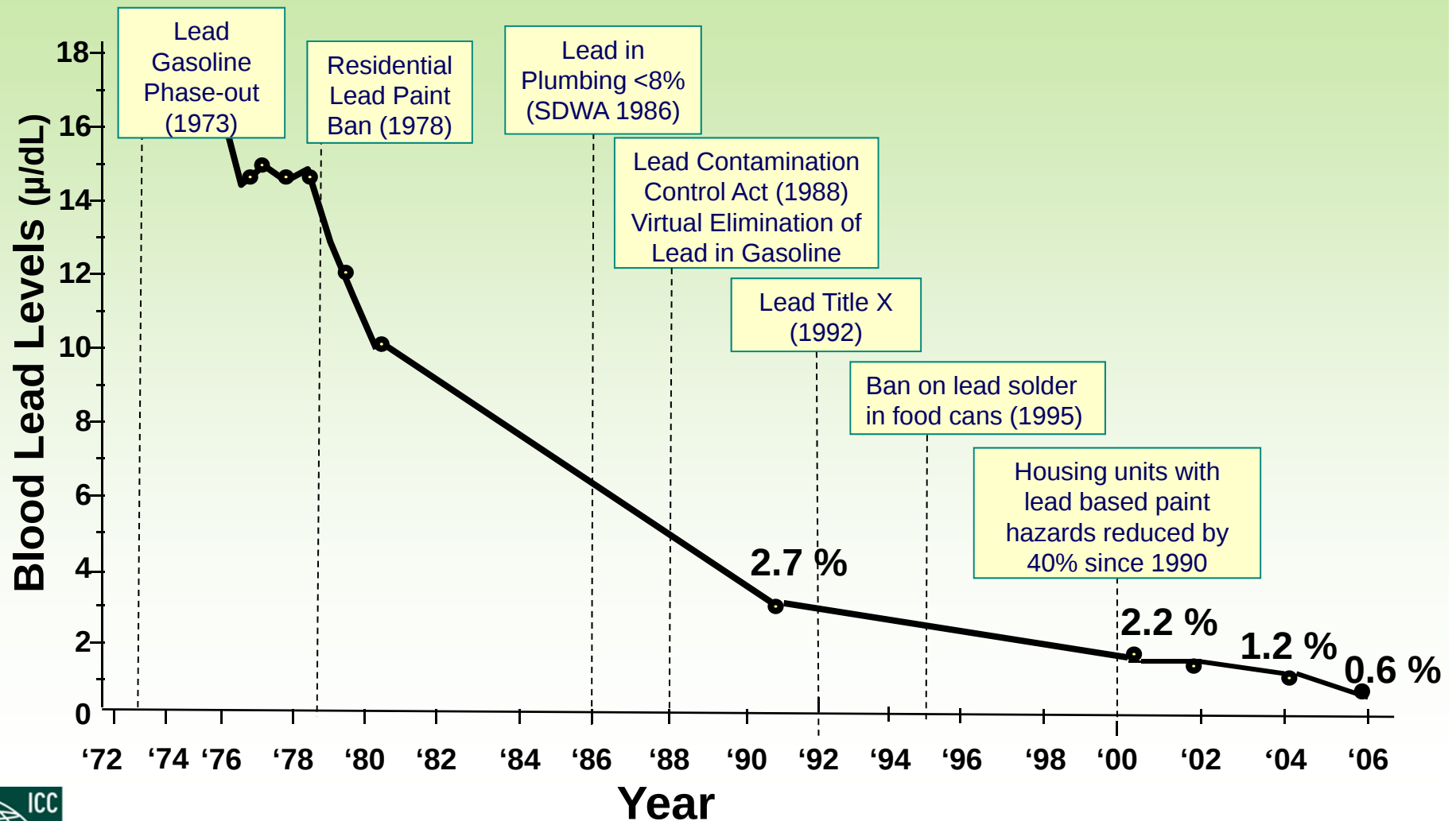


Health Effects of Lead

- Lead causes a range of issues in adults and children – many are lifelong
 - Neurotoxin that affects central nervous and reproductive systems
 - Especially harmful to children and pregnant women
 - Builds up - accumulates in bone and fat tissue
 - Lowers IQ, create behavioral issues, slow growth
 - “No safe blood level of lead has been identified.”¹
- Sources: food, water, contaminated soil, dust, paint, ceramics



Lead Poisoning Prevention Policy and Children's Average Blood Lead Levels

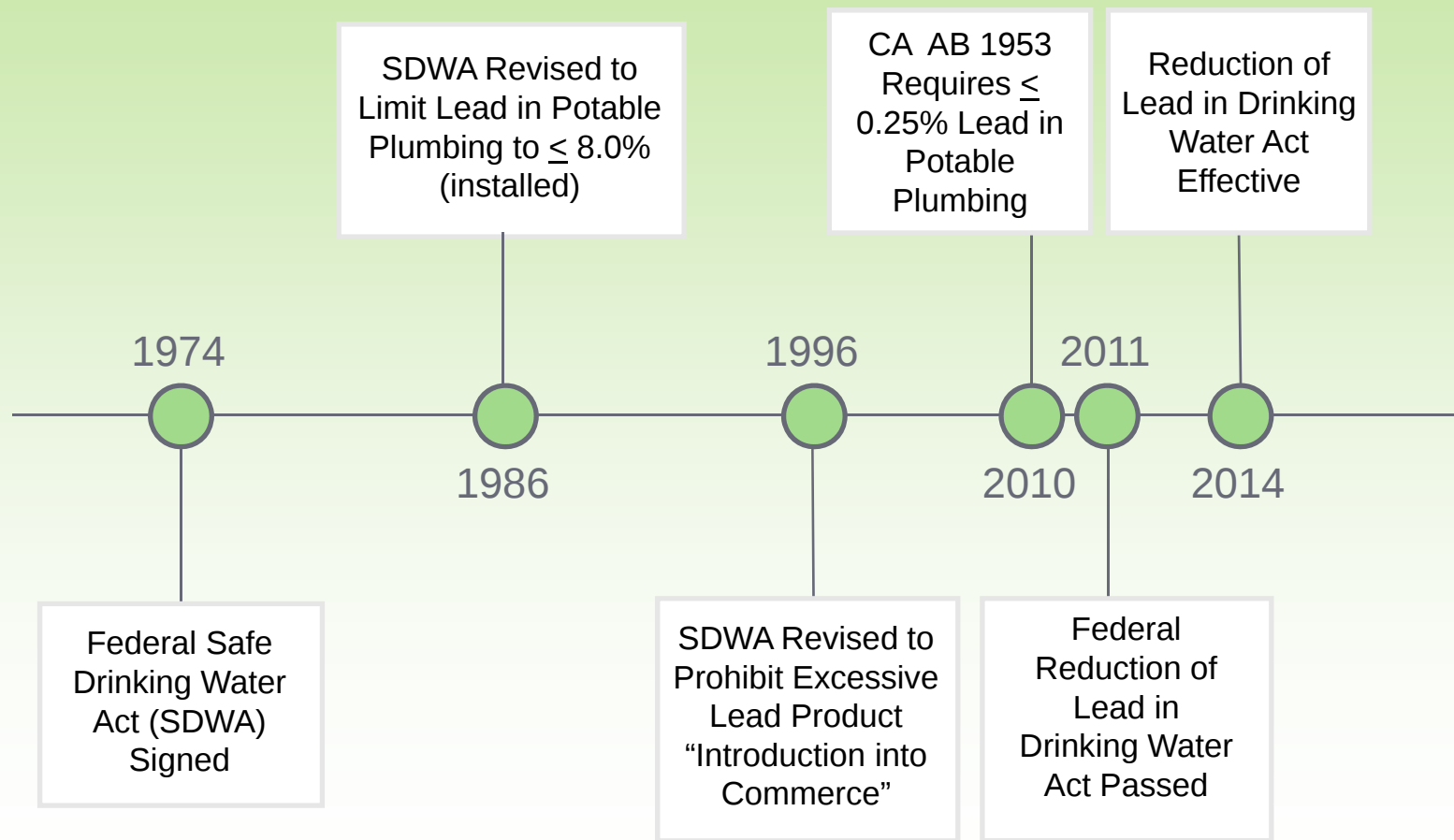


Why Change?

- EPA: Drinking water remains a significant source of lead exposure: 10-20% of ingested lead
- CDC: No safe blood level of lead.
- NSF: Lead leaching is not directly proportional to the level of lead in the product.*
- Lower lead alternative materials.
- Better lead detection methods.



Lead Regulations in Plumbing Products



Current Safe Drinking Water Act

No person may use any pipe, any pipe or plumbing fitting or fixture, any solder, or any flux, after June 19, 1986, in the installation or repair of—

(i) any public water system; or

(ii) any plumbing in a residential or nonresidential facility providing water for human consumption, that is not LEAD FREE (within the meaning of subsection (d) of this section). [42 USC § 300g-6]

Drinking. Teeth
Brushing,
Food Prep,
Maintain Oral
Hygiene
(FAQ #7)

$\leq 0.2\%$ for
Solders and
Flux

$\leq 8.0\%$ for
Pipes, Pipe
Fittings

Reduction of Lead in Drinking Water Act

- [Reduction of Lead in Drinking Water Act](#)
 - Signed January 4, 2011
 - Effective January 4, 2014
- Amends the Safe Drinking Water Act
 - The amended definition of “lead free” is provided
 - 0.20% max lead for solder and flux
 - 0.25% max lead for products by weighted average
 - Multiple component products are calculated to address total wetted exposure based upon wetted surface area of each component and that component’s lead content by percentage

New Calculation Method

Weighted Average Lead Content

$$WLC = \sum_{c=1}^n \left(LC_c \times \left[\frac{WSA_c}{WSA_t} \right] \right)$$

where;

WLC	=	weighted average lead content of product
LC_c	=	maximum lead content of the c^{th} component
WSA_c	=	wetted surface area of the c^{th} component
WSA_t	=	total wetted surface area of all components
n	=	number of wetted components in product

- Applies only to wetted surface area
- Averages lead content at the surface of each wetted part

2012 International Plumbing Code

- *605.2 Lead content of water supply pipe and fittings. Pipe and pipe fittings, including valves and faucets, utilized in the water supply system shall have a maximum of 8-percent lead content.*
- NSF 61-2008 compliance required for
 - Faucets & fixture fittings (424.1)
 - Water service pipe (605.3)
 - Distribution pipe (605.4)
 - Fittings (605.5)
 - Ball, gate, globe valves (605.7)
 - DWTU tubing (611.3)
 - Fountains and coolers (410.1)



2015 International Plumbing Code

- Previous section on 8% lead remains. ([FAQ #11](#))

“605.2 Lead content of water supply pipe and fittings. Pipe and pipe fittings, including valves and faucets, utilized in the water supply system shall have a maximum of 8-percent lead content.”

- New proposal approved to add the following provision ([FAQ #19,21](#)):

“605.2.1 Lead content of drinking water pipe and fittings. Pipe, pipe fittings, joints, valves, faucets, and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent lead or less.”

- NSF 61 requirements remain. ([FAQ#18](#))

What Products Are Covered?

Includes: “...any pipe or plumbing fitting or fixture... in a residential or non-residential facility providing water for human consumption.”

Excludes: “other uses where the water is not anticipated to be used for human consumption.”

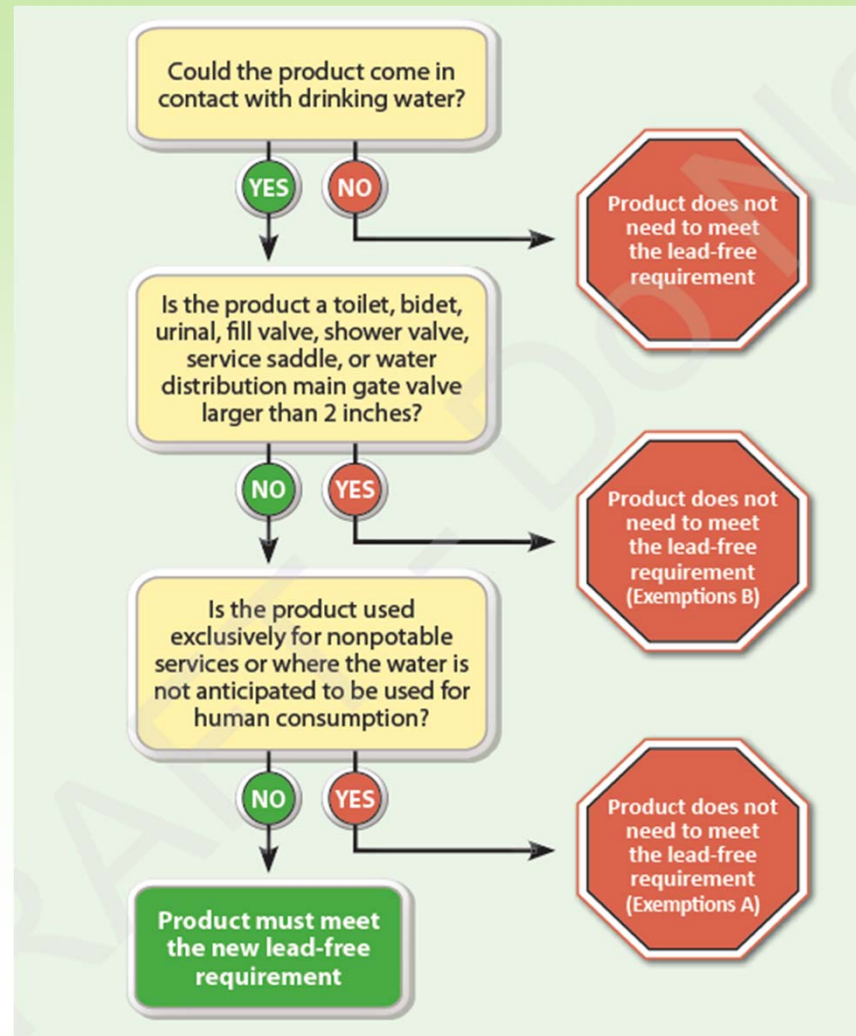
FAQ #6

Specifically Excluded	Not Specifically Addressed
Toilets, Bidets, Urinals and Associated Flush and Fill Valves	Water Heaters, Hot Water Fixtures and Fittings
Tub fillers, Shower Valves	Replacement Parts
Service Saddles	Showerheads
Main Dist. Gate Valves >2” Diameter	Hose Bibbs

FAQ #23-30

FAQ #9

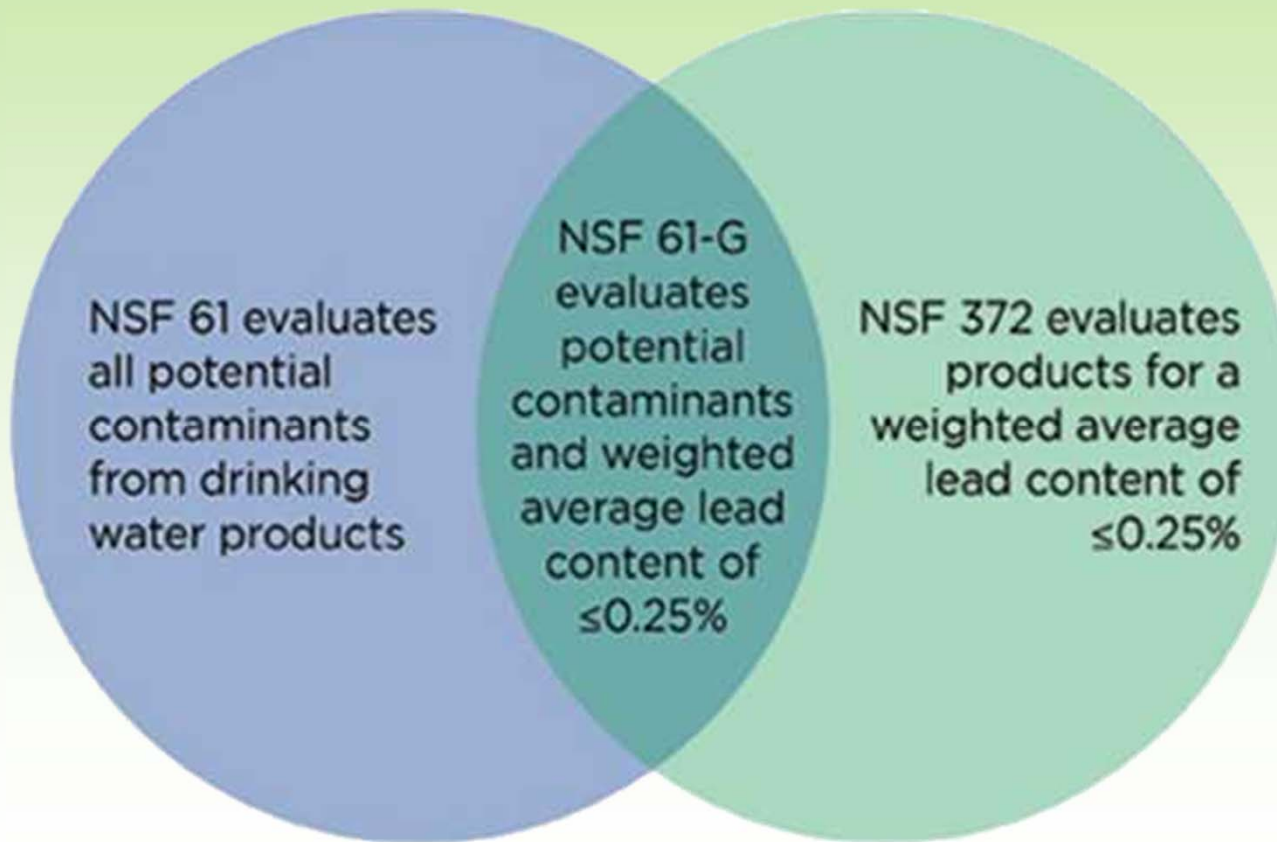
Determining Applicability



Dual-Use Potable and Non-Potable Products

- [Guidance Released by EPA in October, 2013 \(FAQ #10, 12, 13\)](#) allows for higher lead content product to be sold if labeled for exclusive non-potable use.
 - Clear and prominent marking
 - Separate packaging and product labeling
- Code enforcement officials should watch for and flag installation of non-potable components in potable applications.

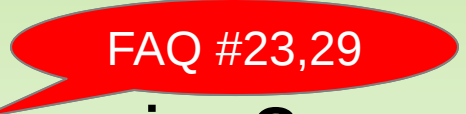
Standards Comparison



Enforcement – Role of the Code Official

- Enforcement of lead requirements for installation/use is assigned to the states.
 - EPA can sanction states for failing to enforce
- Primary enforcement mechanism through building/plumbing codes.
- States may assign other responsible parties (e.g. [DTSC in California](#))

Other Important Questions

- What about replacement parts?  FAQ #23-30
- What about repair and return to service?  FAQ #23,29
- Are hot water systems considered sources of potable water?  FAQ #6
- What about fire sprinklers, **hydrants**?  FAQ #5
- Do coated products comply?  FAQ #17
- Is retrofit required?  FAQ #23

- **What about projects in progress?**  FAQ #15

What about the states?

- States may impose additional restrictions, requirements – cannot be less stringent.
- [CA](#), [LA](#), [MD](#), [VT](#) currently have similar low-lead requirements in place.
 - Certification, compliance requirements vary
 - Differing guidance on affected products
- BE AWARE OF YOUR LOCAL STATE REQUIREMENTS
 - 8% lead limit
 - NSF 61

Key Difference Between State and Federal Laws

- California/Vermont/Maryland/Louisiana – applies to any product intended to convey or dispense water for human consumption through drinking or cooking
- Federal – Applies to any product used in systems where water is anticipated to be used for human consumption
 - Could be interpreted to cover a much broader group of products than state laws

Identifying Compliant Product

- NO SINGLE WAY TO SHOW COMPLIANCE – VARIES BETWEEN MANUFACTURERS
- Options
 - Third-party certification to NSF 372, NSF 61 Annex G
 - Third-party certification to SDWA, State Lead Laws
 - Self-certification
- Vehicles
 - Third-party certification listing
 - Product or packaging marking
 - Specification sheet
 - Manufacturer declaration (document, website)

Third Party
Certification
NOT
required by
SDWA
(FAQ #19)

Certification Marks

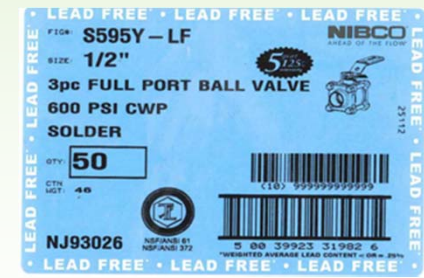
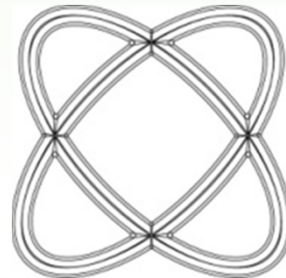
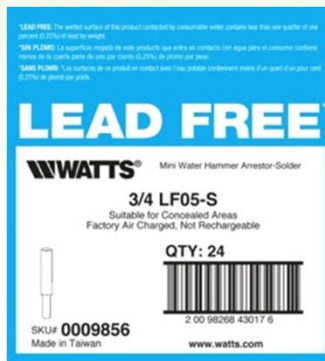
CSA Group	   
ICC Evaluation Services (ICC-ES), LLC	
International Association of Plumbing and Mechanical Officials Research & Testing (IAPMO R&T)	  
Intertek Testing Services NA, Inc.	 

NSF International (NSF)	 NSF-61-G NSF-372 NSF pw-G
Truesdail Laboratories, LLC	
Underwriters Laboratories (UL), LLC	  UND. LAB. CLASSIFIED UND. LAB. CLFD
Water Quality Association (WQA)	  NSF/ANSI 372 by WQA

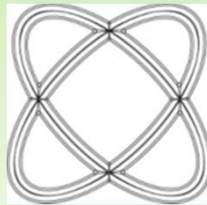
Product Identification Examples: Handle Coatings & Product Packaging



Product Identification Examples: Carton Labels and Hang Tags



Product Identification Examples: Body Markings



LF

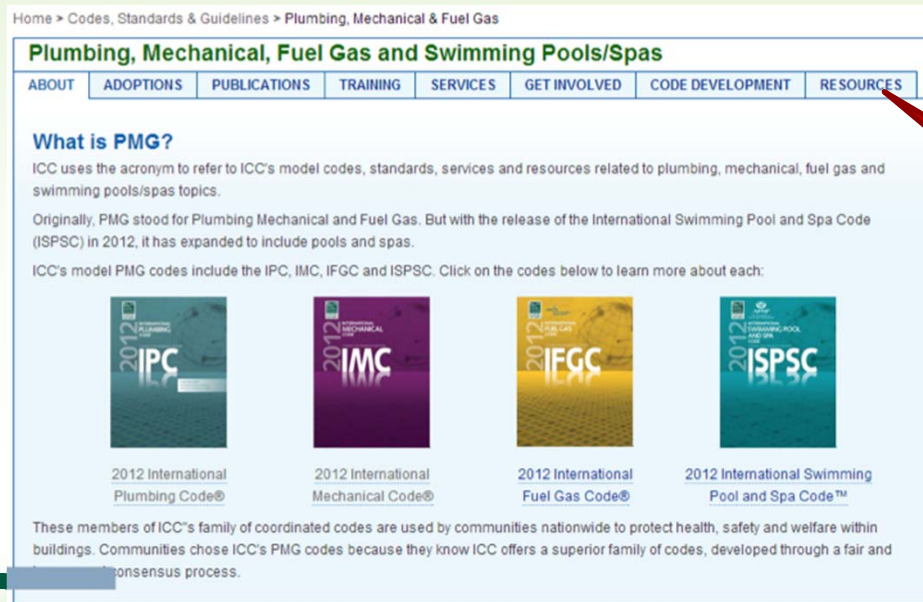


Summary and Conclusion

- New federal lead requirements effective January 4, 2014
- Reduce allowable lead content in potable plumbing components to 0.25% (installed or sold)
- No requirement for retrofit.
- Enforcement at state level usually through codes
- No single compliance mark – varies widely
- States may have additional, more stringent requirements
- More clarification and guidance from the EPA and states is expected...

More Information from ICC

- Resource Links: www.iccsafe.org/pmg
- [PMG Membership Council](#) (free for members)
- ICC-ES PMG: www.icc-es-pmg.org



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