



**pennsylvania**

DEPARTMENT OF ENVIRONMENTAL PROTECTION

## Lead Ban Surveillance Project 2011

Bureau of Water Standards and Facility Regulation  
Safe Drinking Water Program

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August 2011

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## Introduction

Lead is an element occurring naturally in the environment. It can be introduced to the body through food and drink, as well as through inhalation or ingestion of non-food products containing lead. Lead is known to be toxic to humans, accumulating in the skeletal system, where it can remain for decades. Exposure to lead at levels as low as 0.015 mg/L in drinking water can lead to serious health problems such as developmental delays and attention deficits in children, and kidney problems and high blood pressure in adults. Additionally, prolonged exposure can cause brain, nervous system, and hearing damage along with headaches in children, as well as memory problems, pregnancy complications, reproductive problems, and muscle and joint pain in adults.

While lead does not usually occur naturally in water sources, it enters drinking water through corrosion of plumbing materials which the water passes through. Water becomes corrosive when it has a low pH, low mineral content, or high dissolved oxygen content. The Lead and Copper Rule of the Safe Drinking Water Regulations requires public water suppliers to install corrosion control treatment if the lead level is above 0.015 mg/L at more than 10% of the household taps that are sampled. The Pennsylvania Plumbing System Lead Ban and Notification Act, Act 1989-33 (Lead Ban Act) prohibits the use of leaded solders in potable water plumbing. As a result of these regulations, lead exposure from drinking water has been significantly reduced over the last 15 years. The following report details the history of the Lead Ban Act and intern surveillance project, and provides a summary of the work completed by the most recent Lead Ban intern.

## Background: Solder

Solder is an alloy of typically tin and lead used to seal or join metallic surfaces. There are two aspects by which solder is classified; core type and composition. The core is composed of rosin flux, acid flux or solid metal. Flux acts as a pretreatment to the metal being soldered, to help the solder stick and hold. Acid or solid core solders are usually preferred for plumbing purposes. The composition of solder is the percentage of metals contained in the solder. Some common solders, their composition, and uses can be found in Table 1.

**Table 1:** Common Solders and Their Uses.

Composition				Intended Uses
% Tin (Sn)	% Lead (Pb)	% Antimony (Sb)	% Silver (Ag)	
85	15			Plumbing, general purpose
50	50			Plumbing, auto repair, stained glass, general purpose
60	40			Electrical repair, stained glass, general purpose
40	60			Plumbing, general purpose
30	70			Auto body and radiator repair
95		5		Lead free, plumbing
95			5	Lead free, plumbing
5			95	Lead free, plumbing
			100	Lead free, plumbing
?	?	?	?	Commercial grade, general purpose

**Background: The Plumbing System Lead Ban and Notification Act**

The Lead Ban Act was enacted in an effort to strengthen the provisions of the PA Safe Drinking Water Act in order to remain consistent with the Federal Safe Drinking Water Act Amendments of 1986. The Lead Ban Act helps to safeguard our public drinking water systems from harmful levels of lead. The Lead Ban Act was signed into law on July 6, 1989, and went into effect on January 6, 1991. One of the main purposes of this law is to “protect public health and safety by prohibiting the sale of certain materials commonly used in plumbing system construction, modification, and repair,” including leaded solders, pipes, pipe fittings, and fixtures.

Lead free solders and flux may contain no more than 0.2% lead, while pipes, pipe fitting and other fixtures may contain no more than 8.0% lead. The Lead Ban Act also prohibits the sale and use of 50/50 and 85/15 tin-lead acid or solid core solders as well as solders with unlabeled lead content, such as “commercial grade” solder. All other leaded solder is restricted to non-plumbing use only, and may be sold in non-plumbing sections of retail stores. Table 2 outlines the status of solder in Pennsylvania based on the Lead Ban Act.

**Table 2:** Status of Common Solders Based on Composition and Core.

<b>Tin-Lead Composition</b>	<b>Core</b>	<b>Status</b>
? Commercial grade	Solid	Banned
? Commercial grade	Acid	Banned
50/50	Solid	Banned
50/50	Acid	Banned
85/15	Solid	Banned
85/15	Acid	Banned
? Commercial grade	Rosin	Restricted
50/50	Rosin	Restricted
85/15	Rosin	Restricted
60/40	All	Restricted
40/60	All	Restricted
30/70	All	Restricted
15/85	All	Restricted

The second important objective of the Lead Ban Act is to “provide for notice of the potential for leaded contamination of drinking water consumed by users of public water systems.” The Department of Environmental Protection (DEP) has been granted the power and authority to administer and enforce Act 1989-33, which was written in compliance with the Lead Ban provision of the Federal Safe Drinking Water Act Amendments of 1986.

**Background: Implementation of the Act**

During the eighteen months between the signing and enactment of the Lead Ban Act, the Bureau of Water Supply and Wastewater Management (now the Bureau of Water Standards and Facility Regulation) developed the Pennsylvania Lead Ban Surveillance Program in order to eliminate the availability of leaded solders used for plumbing purposes. A public outreach campaign was designed to educate those audiences affected by the ban, including distributors, retailers, manufacturers, public water suppliers, plumbers and plumbing contractors. The campaign informed the public about the

environmental and health effects of lead in drinking water through media reports and the distribution of pamphlets, fliers, and newsletters.

Since 1991, the Bureau of Water Standards and Facility Regulation has hired a summer intern to implement the Lead Ban Surveillance Program. The main focus of the Surveillance Program is to conduct compliance checks on retail facilities where solder is commonly sold to gather data in order to ensure compliance with the Lead Ban Act. Initially, the program focused on the sale of solder at hardware stores only.

### **Background: Inclusion of Other Retail Stores**

In 1999, the Department discovered that stained glass stores sell solder, and thus should be included in the Surveillance Program. In 2002, it was brought to the attention of the surveillance program that other retail establishments (i.e. auto parts stores) were selling banned and restricted solders. Additionally, in 2004, electronic stores were found to sell solder, and became included in the program. These stores carry solder for non-plumbing uses, such as in vehicle maintenance, electronic repair and the creation of stained glass decor. However, the Lead Ban Act states that no “person” may sell banned solder in the state, thus including any type of retail store. The presence of lead free and restricted solders is acceptable anywhere in these stores, as they do not have plumbing sections. However, the availability of banned solder is a violation of the Lead Ban Act. Section 4, “Prohibition of Sale of Plumbing Materials That Are Not Lead Free,” of the Act states:

“No person shall sell, exchange or offer for sale within the Commonwealth any pipe, pipe fitting, solder or flux commonly used in plumbing systems that is not lead free. Solders that are not lead free and that are commonly used in plumbing systems include, but are not limited to, solid core or acid core solders, such as 50/50 tin-lead solder and 85/15 tin-lead solder.”

At the time that the Act was written, 50/50 and 85/15 acid and solid core solders were commonly used in plumbing systems and were therefore banned for sale in Pennsylvania so no one could be able to unintentionally use it in a plumbing system. This is the basis for surveying the other stores.

Initial surveys of these ‘other’ stores - auto parts, stained glass and electronics stores were conducted in 2004 and 2005 to determine what solders are available (specifically whether banned solder is sold) and whether the program needed to be expanded to include these retail facilities as part of routine surveillance. Only a small percentage of these facilities have been surveyed. Of the stores surveyed, several have been in violation of the Lead Ban Act, so these facilities are now included in stores to be surveyed. Since 2007, no distinction is made in the results section as to the difference between hardware and other retail stores. Surveys are conducted primarily at hardware stores, home centers, general department stores, plumbing supply stores, and auto parts stores. Also included are craft stores and electronics stores. Approximately 20% of retail stores in Pennsylvania that potentially sell solder are surveyed each year, with the goal of visiting each store in Pennsylvania at least once every five years.

## **Internship Project**

The primary purpose of the Lead Ban internship project is to ensure compliance with the Lead Ban Act. Interns employed by the Bureau of Water Standards and Facility Regulation conduct surveillance activities to gather data in order to ensure compliance with the Ban of Sale provision of the Pennsylvania Plumbing System Lead Ban and Notification Act.

The internship project began in the summer of 1991 and continued in the summers of 1992, 1993, 1994 and 1995. Surveys were not conducted during 1996 and 1997, but were resumed in 1998 and continue to present day. From 1991 through 2001, a representative sample of stores in each county was surveyed. However, as of 2002, surveillance is conducted completely in a limited number of counties each year. All stores in the selected counties are surveyed. As stated earlier, approximately 20% of the retail facilities in the state are visited each year. If interns complete their assigned counties before the end of the summer, stores selling banned solder or found to be noncompliant at the time of their last visit are re-visited.

Interns are provided with a list of all stores previously known to sell solder in the assigned counties. Additionally, interns are responsible for searching for new stores using the Internet, phone books, and any other available resources. This list serves as a basis for surveys, with any stores encountered along the way being added to the list. During each survey, information is recorded on a survey form (Appendix A). The information gathered serves to determine the compliance status of the store. A store is either in compliance with, or in violation of, the Lead Ban Act. Noncompliance may include one of two violations. A store may be selling banned solder, or selling restricted solder in their plumbing section. It is also possible for a store to have both types of violations. If a store does not have either type of violation, meaning that all restricted solder is sold in a non-plumbing section and there is no banned solder for sale, they are considered to be in compliance with the Lead Ban Act.

If banned solder is found or a store is selling any leaded solder in the plumbing section, the intern speaks with a manager or other store employee. The Lead Ban Act is summarized, and the reason for the potential violation is explained. Employees are asked to correct the problem by removing the banned solder, and/or moving the restricted solder to a non-plumbing section. Often, an information packet (consisting of a fact sheet summarizing the Lead Ban Act, a fact sheet summarizing the status of different solders and a copy of the Lead Ban Act) is left with store employees, regardless of their current compliance status, in order to remind them of the Lead Ban Act and its implications. A copy of this packet (excluding the Lead Ban Act) is found in Appendix B. Retailers are reminded that discarding leaded solder in the trash is prohibited by the Department's Waste Management regulations, and are encouraged to return the solder to their supplier for store credit. If information about the manufacturer or supplier of the banned solder is available, it is recorded on the survey form. Based on the information gathered during these surveys, a DEP Safe Drinking Water Program staff member determines whether the retailer is in compliance with the provisions of the Lead Ban Act. Non-compliant retailers are sent a Violation Notice within two weeks of the intern's visit as a written record of the visit and reminding them of the appropriate corrective action(s).

Data collected during each survey is stored in a computer database. The Lead Ban database is updated and maintained on a regular basis throughout the summer to ensure an accurate list of store contact information as well as to keep track of their survey history. The database has undergone several revisions over the years, and is very valuable in making office time efficient and productive for the intern. The database also serves to create various reports which help show the statistics of the Lead Ban Surveillance Program results over the years.

During the summer of 2011, the Lead Ban internship program had to overcome a major obstacle. Beginning on June 15, 2011, summer interns were no longer permitted to drive state vehicles in DEP. In order to continue lead ban surveillance of stores throughout the state, a full-time DEP employee drove

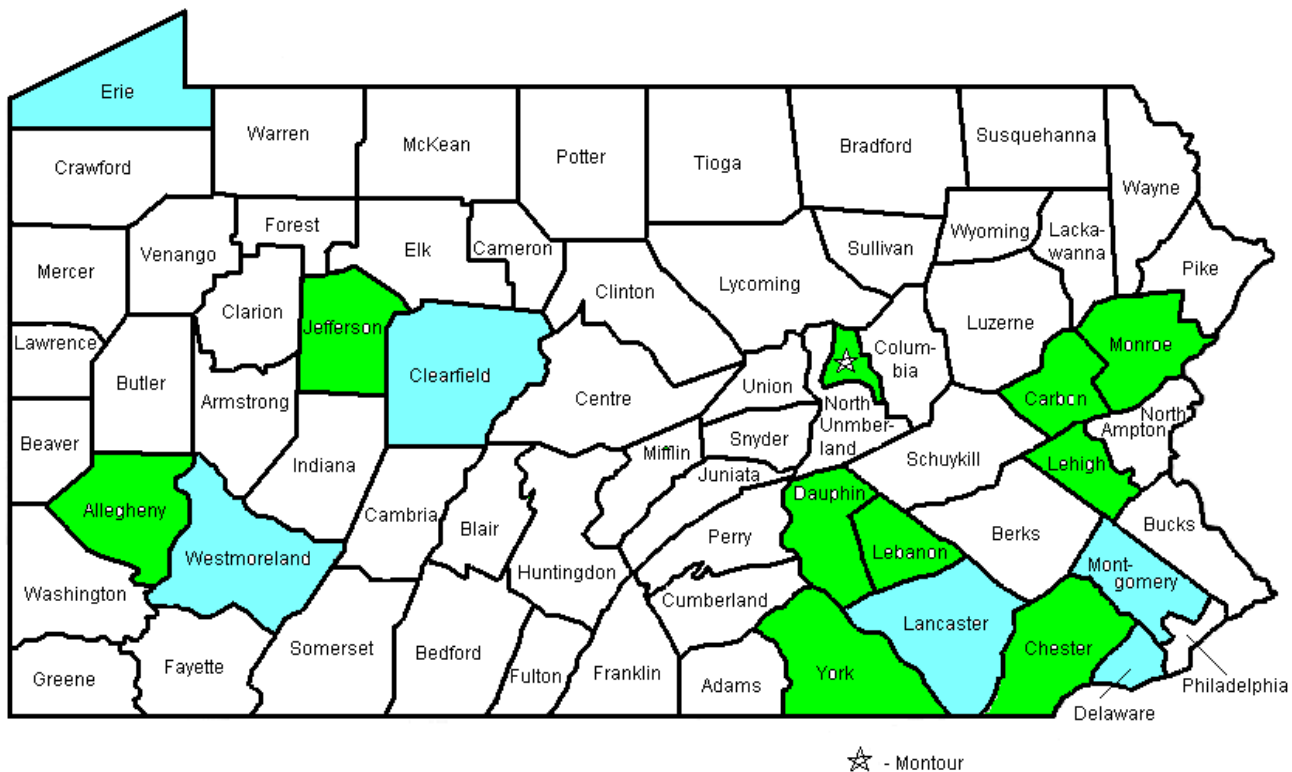
the intern two days a week. Due to this driving restriction, most of the surveillance conducted after June 15 was done through day trips to Lancaster and the surrounding counties to target stores that had previous violations or stores that had not been visited in recent years. This year, the intern collected GPS coordinates of store locations. In the past, only the addresses of stores were recorded. GPS coordinates provide more precision in mapping and the stores can be found in a more timely and precise manner.

### **Results: 2011 Surveillance Activity**

This summer a total of 230 stores potentially selling solder were surveyed in 16 different counties. Of the 230 stores surveyed, 176 stores, or 77% sold solder. A total of 54 stores that were visited did not have solder for sale. Of the stores selling solder, 14 had restricted leaded solder for sale in a non-plumbing area and 139 were selling only lead-free solder. Twenty-four of the 176 stores (14%) selling solder were in violation of the Lead Ban Act. Restricted solder was found in the plumbing section or found in proximity to plumbing materials in 21 of 176 (12%) of the total stores selling solder. Banned solder was found in 3 stores (1.7%) of the total stores selling solder. The stores selling banned solder were located in 3 of the 16 different counties visited. This summer there were two violations found for selling both banned solder and leaded solder in the plumbing section. A summary of the survey results by county for 2011 are provided in Table 3.

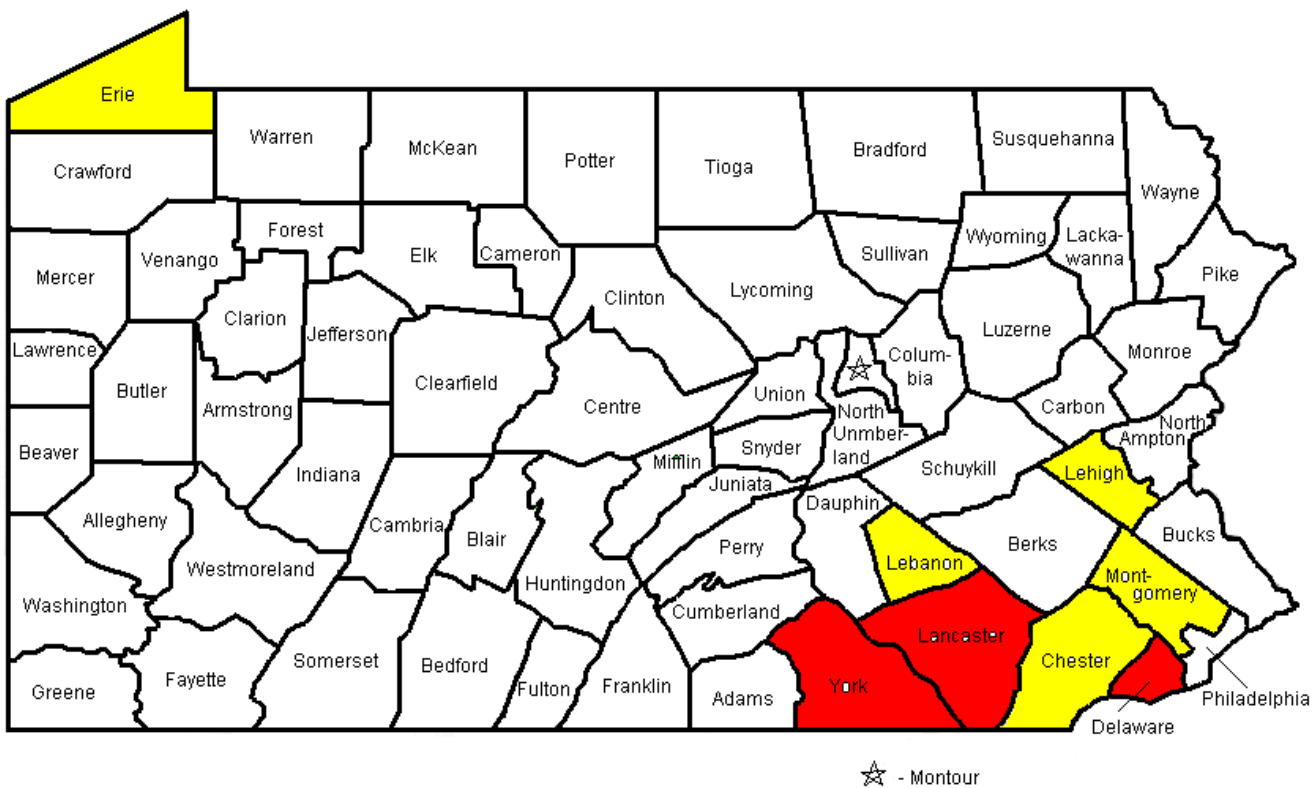
Included in the above results are re-inspections that were conducted in 5 of the 16 counties that were surveyed this summer. For the purpose of this report, a store visit was classified as a re-inspection if the store was found to be in violation of the Lead Ban Act within the last year. The re-inspections account for 13 of the total 176 stores surveyed. Of the 13 re-inspections, all 13 stores were still selling solder. Out of these 13 stores, 11 were found to be back in compliance with the Lead Ban Act and two of the stores were still out of compliance with the Act.

**Figure 1:** Counties surveyed in 2011.



*Note: Green indicates initial and routine surveys and blue indicates initial, routine, and revisit surveys.*

**Figure 2:** Counties selling banned solder in 2011.



*Note: Red indicates counties with banned & ROOP solder, yellow indicates only ROOP*



**Table 3: Summary of 2011 Surveys and Re-inspections**

County ID Number	County Name	Total Stores Inspected	Total Stores Selling Solder	Non-Compliant Stores	Stores Selling Banned Solder	Restricted Solder out of Place (ROOP)	Restricted Solder in Place	Lead	Lead
								Free	Free
								Sold	Only
2	Allegheny	25	18	0	0	0	2	18	16
13	Carbon	15	10	0	0	0	3	10	7
15	Chester	4	4	2	0	2	0	4	2
17	Clearfield	2	2	0	0	0	0	2	2
22	Dauphin	34	22	0	0	0	1	22	21
23	Delaware	28	22	3	1	2	1	22	18
25	Erie	2	2	1	0	1	0	2	1
33	Jefferson	1	1	0	0	0	0	1	1
36	Lancaster	15	13	4	1	3	0	13	9
38	Lebanon	5	5	1	0	1	0	5	4
39	Lehigh	28	19	3	0	3	2	19	14
45	Monroe	14	9	0	0	0	1	9	8
46	Montgomery	46	38	8	0	8	2	38	28
47	Montour	1	1	0	0	0	1	1	0
65	Westmoreland	1	1	0	0	0	0	1	1
67	York	9	9	2	1	1	1	8	7
<b>Total:</b>		<b>230</b>	<b>176</b>	<b>24</b>	<b>3</b>	<b>21</b>	<b>14</b>	<b>175</b>	<b>139</b>

It is difficult to determine a trend for data prior to 2001, because the method of surveying the stores was changed after the 2001 internship. As previously noted, since 2002, stores are surveyed county by county, instead of surveying a few representative stores in each county, as was the procedure in the past.

**Table 4:** Comparison of Stores Selling Banned Solder 1991-2011

	1991	1992	1993	1994	1995*	1998*	1999	2000	2001	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Stores Selling Solder	94	480	141	153	130	99	168	186	187	245	260	194	114	181	260	248	306	281	176
Percent Selling Banned Solder	62%	45%	23%	15%	17%	8%	13%	12%	4%	19%	13%	10%	16%	5%	7.7%	3.6%	3.6%	1.1%	1.7%

(\*No data was collected 1996-1997).

Note: years in bold font mark the change in surveying method

## **Discussion: Why are stores in violation?**

Though the Lead Ban Act has led to great reductions in banned solder for sale in Pennsylvania, there were still two instances this summer in which banned solder was found for sale in stores. One reason that stores may sell banned solder is that the owners or managers are unaware that it is illegal to sell that type of solder in Pennsylvania. In one hardware store chain, we found the problem to be that all stores in the chain followed the same planning diagram to set up the layout of the store. In this planning diagram, it was suggested and labeled by the chain management that 50/50 solder could be stocked on shelves and put for sale in the soldering section of the store. After further investigation into this planning diagram issue, and upon contact with the Compliance and Regulations Manager for the chain, we discovered that the company was not aware that 50/50 solder was banned for sale in Pennsylvania. After talking with the compliance manager, 50/50 banned solder was recalled from all store locations and a distribution restriction for Pennsylvania was attached on the list of banned solders.

This summer, the most common violation related to stores selling restricted solders in their plumbing section or selling restricted solders in the proximity of plumbing materials. In 17 stores this summer, we found restricted solders either being sold in the plumbing section of a store, or in the proximity of materials labeling for plumbing use, both of which are violations of the Lead Ban and Notification Act. The number one reason for this violation seems to have been that store owners and managers were unaware that certain solders have restrictions on their sale, and that leaded solder cannot be sold in the plumbing section of their store nor can leaded solder be sold with solder that is labeled for plumbing use. The sale of restricted solder with plumbing solder was a consistent issue for the same hardware store chain mentioned above. Once again, this was found to be a result of the chain's planning diagram and the management being unaware that restricted and plumbing solders could not be sold together. After the Compliance and Regulations Manager for this chain was contacted and informed that that selling restricted and plumbing solders together is illegal in Pennsylvania, the planning diagram was revised to include a note regarding the display of leaded solders in the Commonwealth. Furthermore, a notice was sent to all retailers in the chain discussing the sale and display of restricted solders in Pennsylvania. The other stores that were found to be in violation for the sale of restricted solder in the plumbing section or with plumbing materials, were also largely unaware that the two types of solder could not be sold together or in the plumbing section. Once they were made aware of the violation, and informed of Lead Ban Act, all of the store managers were cooperative and many of them corrected the issue while we were still in the store.

This summer four of the stores that were found to be in violation during the summer of 2010 were re-inspected, along with nine of the stores found to be in violation earlier during the summer of 2011. Overall, the results of the re-inspections were positive. Out of the 13 stores re-inspected this summer, 11 of them were in compliance. Of the remaining two stores that were still in violation, it appeared in both cases to be an issue of communication between employees and management. For both stores, information regarding the violation and the Act had been left with an employee; however, this information was not given to the management of the stores. When these stores were revisited, we were able to talk with managers from both and the violations were corrected while we were still there.

## **Conclusions: Trends and Suggestions**

Since 1991, the availability of 85/15 and 50/50 solders in Pennsylvania has significantly decreased. This summer, 1.7% of surveyed stores had banned solder for sale. This figure helps to demonstrate the effectiveness of the Lead Ban Act program since 1991, when up to 62% of stores were selling banned solder. However, the 1.7 % of stores found to be selling banned solder this summer is slightly higher than the 1.1% of stores found to be selling banned solder in the summer of 2010. This

slight rise in the percentage of stores selling banned solder is most likely due the fact that this summer, the program was focused on those counties and stores that had not been surveyed recently. If stores in these counties had been visited more frequently or reminded via informational mailing about the lead ban act, it is possible the number would have been lower.

A large percentage of the stores visited this summer sold only lead free solder, with 139 stores out of 176 or nearly 79% selling only lead-free solder. This has been an apparent trend for the past several years. In the summer of 2010, out of the 281 stores selling solder, 184 stores had only lead-free solder for sale, which is 65% of stores. Therefore, the summer of 2011 saw 22% more stores selling only lead-free solder when compared to the summer of 2010. Compared to the summer of 2009, there was a 20% increase in the number of stores selling only lead-free solder from 45% to 65%. Other recent data shows that in 2008 around 47% of stores with solder were selling only lead-free, and in 2007 the percentage was 32.1%. This trend towards selling only lead-free solder may be attributed to several factors. First, there are fewer small, family-owned hardware stores, and significantly more large brand name hardware stores (such as Lowes, Home Depot, and Walmart) throughout the state. All of these stores sell only lead-free solder, and as their number increases so does the number of stores that only offer lead-free solder for sale. Another trend noticeable this summer, was that many of the stores that were out of compliance in the past for either selling banned or restricted out-of-place solder (ROOP), had switched to only lead-free products. It is possible that many store owners and managers find it easier to sell only lead-free products rather than having to worry about the type of solder they carry and where it is placed in their store.

Another trend that was noticeable this summer was the large number of stores that were out of business. This summer 61 stores in the DEP Lead Ban Database were changed to inactive because they were no longer in business. These stores were changed to inactive when either upon visiting their former address they were no longer there, or when they were not able to be contacted via phone or internet to verify they did still exist. This has been the trend in recent years also as economic conditions force many smaller businesses to close down as they cannot compete with the large chain stores.

When evaluating the results of the Lead Ban Act and the store inspections, one can see that the program has been very effective. This summer only 1.7% of stores carried banned solder which is a tremendous reduction since the start of the program. Also, this summer there were notably more stores that only carried lead-free solder than in the past. Though the program has been very effective, there is certainly a need to continue the program as shown by the fact that stores in violation of the Lead Ban Act can still be found throughout the Commonwealth. In the future, it may be more effective to focus on re-inspections of stores that were recently not in compliance, on stores that have a history of non-compliance, and those stores/counties that have not been visited for an extended period of time. The program also needs continue due to the changing face of the economy, as stores are constantly going out of business and new stores are built. It is important for the Lead Ban intern to search for new stores in the counties they are visiting, whether online, in person, or through the phone book, to see which new stores need to be surveyed for solder. It may also be helpful to send mailings or emails to stores to remind them of the Lead Ban Act and what they should be doing to stay in compliance. It would also be helpful to contact upper level environmental and compliance managers of the large chain stores to have them provide a statement that they only carry lead-free solder. This would eliminate the need to continue the surveillance of these stores. Despite the violations that were found this year, the Lead Ban Act program has proven to be very effective and progress continues to be made in reducing the number of non-compliant stores.

The full text of the Lead Ban Act can be found at:





# Fact Sheet

## Commonwealth of Pennsylvania • Department of Environmental Protection

### PENNSYLVANIA LEAD BAN

In July 1989, Pennsylvania passed *The Plumbing System Lead Ban and Notification Act* (PA Lead Ban). The law became effective on Jan. 6, 1991, and applies to plumbing construction or repairs done after that date.

Pennsylvania's law is similar to the 1986 amendments to the federal Safe Drinking Water Act (SDWA). The federal law requires the use of lead-free materials in construction or repair of any public water systems (PWS), any facility connected to a PWS, or any plumbing that provides water for human consumption. Lead-free is defined as any pipes or pipefittings that contain less than 8 percent lead, and any solders or flux that contain less than 0.2 percent lead. The law was further strengthened by the 1996 amendments to the federal SDWA. The amended law bans plumbing suppliers from selling after Aug. 6, 1998, both leaded solder or flux and pipe, fittings, or fixtures that are not lead-free and do not meet acceptable lead leaching standards. Pipes, fittings, or fixtures that meet the lead leaching standards in ANSI/NSF Standard 61: *Drinking Water System Components – Health Effects* are deemed to be acceptable.

#### Why Ban Lead?

Although lead may be found in many places in our modern society, water is probably the easiest to control. Our drinking water can contain a significant amount of lead (up to 40 percent of a person's total lead exposure) as a result of corrosion of pipes, solder and fixtures found in buildings or in the mains or service connection of a PWS. Solder containing lead is a major target under the PA Lead Ban since it is more likely to exceed allowable lead-content levels.

Pregnant women, their unborn children, young children (especially under the age of six), and middle-aged men and women are especially vulnerable to the health effects of lead. Exposure to lead above recommended levels may lead to delays in normal physical and mental development in babies and young children, cause slight defects in attention span, hearing and learning abilities in children, and may slightly increase blood pressure in some adults. Long-term exposure to lead above recommended levels may result in stroke, kidney disease, or cancer.

#### Summary of the PA Lead Ban

- PA's Lead Ban applies to all plumbing, not just plumbing used for drinking water.
- The Lead Ban forbids the sale and use of leaded solder, flux, pipe and pipe-fittings.

These products were to have been removed from sale by Jan. 6, 1991.

- Solders banned for sale in Pennsylvania include 50/50 and 85/15 tin-lead acid and solid core solders, leaded solders labeled for plumbing use, or leaded solders not labeled as to content.
- Other leaded solders may be sold only if the package bears a prominent label stating that it is illegal to use the solder or flux in the installation or repair of any plumbing. Also, leaded solder is not allowed to be located in the plumbing section of the retail facility.
- The Lead Ban applies to all water users including private homes or facilities that obtain drinking water from private wells.
- A builder must certify that materials used in the construction of a new plumbing system, which is to be connected to a PWS are lead-free. A PWS must refuse connection to any person who fails to provide that certification unless the local municipality has a plumbing code that prohibits the use of leaded materials.

## Further Information:

### Plumbers

**You may only use lead-free materials in any construction or repair work you do in Pennsylvania.** Specific materials that may not be sold or used include:

- Lead Pipes.
- Copper or brass fixtures, pipe or fittings not meeting the lead-free definition and not meeting the lead leaching limits set in ANSI/NSF Standard 61 after Aug. 6, 1998.
- Solid and acid core solders or flux containing more than 0.2 percent lead.
- Solders not labeled lead-free or not labeled for lead content.
- Lead-containing solders labeled for plumbing use.

The Lead Ban does not apply to:

- Bulk lead normally used to repair cast iron pipe joints.
- Bar lead solder normally used in construction and repair of sheet metal, such as ductwork, roofing, etc.
- Any other lead solder not used in the plumbing industry (except 50/50 or 85/15 tin-lead solder). Solders that have automotive, electronic, industrial or other applications not related to plumbing are not banned. These solders have specifications distinct from solders commonly used for plumbing applications.

### **Builders, Real Estate Agents, Property Owners, Municipal Officers, and Public Water Suppliers**

After Jan. 6, 1991, before a newly constructed home or building may connect to a public water system (PWS), the individual requesting the connection must certify to the PWS that the materials used in the plumbing system are lead-free or the local plumbing code must require that lead-free materials be used.

**The PWS must refuse connection if proper certification is not provided and the municipality does not have a suitable plumbing code.**

### Private Wells

Although certification is not required for hook up to a private well, the PA Lead Ban applies to all plumbing applications. Home buyers, home owners, real estate agents, and contractors should be sure that only lead-free materials are used in all new plumbing construction and repairs.

### Violation of the Lead Ban

If plumbing materials containing lead are used in Pennsylvania after Jan. 6, 1991:

- The plumber may be required to replace the banned materials with lead-free materials at the plumber's own expense. In addition, a supply of an alternate, approved drinking water (bottled water) may be required until the plumbing is replaced.
- Monetary penalties may be assessed.

Federal law forbids the US Department of Housing and Urban Development (HUD) and the Veteran's Administration (VA) from insuring or guaranteeing a mortgage, or from furnishing assistance, for a newly constructed residence if the new residence's potable water system is not lead-free.

### For Additional Information:

Contact your local municipality if you suspect a local plumbing code violation.

If there isn't a local plumbing code or if you suspect a violation of the ban of sale, please contact:

PA Department of Environmental Protection  
Bureau of Water Standards and Facility Regulation  
P.O. Box 8467  
Harrisburg, PA 17105-8467  
(717) 772-4018

For more information, visit DEP's Web site at [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Drinking Water.





# Lead Solder: What Can I Sell?

## DEP Fact Sheet For Wholesalers, Distributors And Retailers

The purpose of this fact sheet is to summarize how the Department of Environmental Protection (DEP) will implement and enforce the ban of sale of lead solders as required under Pennsylvania's (PA) Plumbing System Lead Ban and Notification Act. This law took effect on January 6, 1991 and prohibits both the sale and use of lead plumbing materials. Solders are a major target under the PA Lead Ban since they are more likely than other plumbing materials to exceed allowable lead-content levels.

### Definition of Lead-Free under PA Lead Ban

- *Pipes and pipe fittings containing less than (<) 8.0 % lead*
- *Solders and flux containing less than (<) 0.2 % lead*

### Solders Banned For Sale

These solders cannot be distributed or sold in wholesale or retail establishments in Pennsylvania.

- 50/50 and 85/15 solid core and acid core solders (as listed in the Act).
- Lead-containing solders labeled for plumbing use
- Solders not labeled lead-free or labeled as to content

### Solders with Restricted Sale

- Lead-containing solders not banned for sale, including all rosin core solders, have sale restrictions. These solders are intended to be used for non-plumbing purposes.
- These solders cannot be sold or displayed in plumbing supply sections of general wholesale/retail stores or in the proximity of plumbing materials in any establishment.
- DEP suggests the plumbing wholesalers discontinue the sale of these solders because of the danger of their use for plumbing purposes, thus opening the wholesaler to liability under the Act.

See reverse side for the banned status of various solders.

## Solder Identification Table

Composition Weight %				Intended Use	Ban Status
Tin (Sn)	Lead (Pb)	Antimony (Sb)	Silver (Ag)		
85	15	--	--	Plumbing, general purpose	B
50	50	--	--	Plumbing, general purpose	B
60	40	--	--	General purpose, stained glass, electrical	R
45	55	--	--	General purpose	R
40	60	--	--	General purpose	R
35	65	--	--	Non-plumbing wiping	R
35	63.2	1.8	--	General purpose	R
40	58	2	--	General purpose	R
30	70	--	--	Auto body and radiators	R
25	75	--	--	Auto body and radiators	R
20	80	--	--	Auto body and radiators	R
2	98	--	--	Auto radiator cores	R
63	37	--	--	Electronic, circuit boards	R
70	30	--	--	Industrial-coating metals	R
62	38	--	--	Industrial-silver surfaces	R
15	85	--	--	Industrial-coating metals	R
10	90	--	--	Industrial-join/coat metals	R
5	95	--	--	Industrial-join/coat metals	R
--	97.5	--	2.5	Industrial-torch heating	R
--	94.5	--	5.5	Aircraft engines	R
20	79	1	--	Machine soldering	R
25	73.7	1.3	--	Machine soldering	R
30	68.4	1.6	--	Machine soldering	R
1	97.5	--	1.5	Food service equipment	R
62	36	--	2	Silver coated surfaces	R
96	--	--	4	Lead free	L
95	--	--	5	Lead free	L
94	--	--	6	Lead free	L
95	--	5	--	Lead free	L

B - Sale of acid and solid core solder completely banned.

R - Sale restricted. These solders cannot be sold or displayed in plumbing supply sections of general wholesale/retail stores or in proximity to plumbing materials in any establishment. The label cannot indicate plumbing as an intended use.

L - Lead Free.