



A Division of The Society of The Plastics Industry, Inc.

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### PVC producers' hopes rise as lead use sinks

Producers of polyvinyl chloride (PVC) and PVC pipe are keeping a close eye on a movement afoot in Washington, D. C., to lower the regulated level of lead in drinking water under the Safe Drinking Water Act (SDWA) from the current standard of 50 micrograms/liter. Officials at the Environmental Protection Agency (EPA) say that next year, based on a soon-to-be-released study conducted within the agency, EPA may propose 20 microg/l as the "enforceable" level for lead in drinking water. That won't go all the way toward pleasing some environmentalists, who would like to see U.S. drinking water free of lead

For your information.



Snider hopes codes "open up" for PVC pipe.

and other contaminants from pipes, including copper. This month, for example, the Washington, D. C.-based Environmental Defense Fund (EDF) demand-

ed that EPA drop the allowable level of lead in drinking water to 10 microg/l. The 20-microg/l proposal does, however, have potentially pleasing implications for the PVC producers who have long been fighting to get their products into the mainstream of use in home construction.

**Increases.** "If EPA reduces the lead threshold limits," says Roy T. Gottesman, executive director of the Vinyl Institute (Wayne, N. J.), which represents the major producers of PVC resin, "that, coupled with the fact that Congress has banned lead solder use by 1989," may lead to a big increase in PVC resin production. U. S. consumption of PVC resin will reach about 7.2 billion lb this year; roughly 1.8 billion lb went into various kinds of pipe. While use of PVC in potable-water delivery pipe is "well under" the 1.8 billion lb figure, says Gottesman, the potential increase for PVC, should EPA lower the lead-in-water threshold, is in the range of "hundreds of millions" of pounds. "I would expect long term this would present an opportunity for the PVC pipe industry,"



Silbergeld: A 20-microg/l level is not sufficient too, says George R. Snider, Jr., director of external affairs for BFGoodrich's Geon Vinyl division in Cleveland. Other recent federal government ac-

**Where lead levels in water exceed EPA's standard\***

State	Number of samples	Range of lead in samples taken (parts per billion)
Arizona	18	5.0 to 300.0
Colorado	60	0.0 to 500.0
Connecticut	23	0.0 to 120.0
Florida	52	0.0 to 1,800.0
Illinois	133	0.0 to 10,000.0
Indiana	71	0.0 to 650.0
Massachusetts	145	0.0 to 1,000.0
Michigan	34	0.0 to 300.0
Minnesota	44	0.0 to 132.0
North Carolina	24	1.0 to 200.0
New Hampshire	47	0.0 to 347.0
New Jersey	93	0.0 to 600.0
New York	157	0.0 to 400.0
Ohio	67	0.0 to 210.0
Pennsylvania	107	0.0 to 250.0
Rhode Island	13	0.0 to 77.0
South Dakota	10	2.5 to 66.0
Vermont	19	0.0 to 269.0
Washington	24	0.0 to 110.0

\*50 parts per billion. Source: Environmental Protection Agency.

tions strengthen the probability of increased use of PVC as a substitute for potable-water pipes made of metal and soldered with lead. The SDWA, signed into law June 19 by President Reagan, forbids the use of new pipes or patches to existing pipes having lead content that exceeds 8%. States that do not enforce the law's standards for pipe and solder by June 19, 1988, can lose up to 5% of their grant money from EPA for public drinking water systems. Also beginning on that date, the U.S. Dept. of Housing and Urban Development and the Veterans Administration may not provide mortgage insurance or other assistance for new residential property if plumbing contains lead in excess of the specified SDWA limits—i.e., no more than 0.2% lead in solder or flux, and no more than 8% lead in pipe or pipe fittings.

**Copper levels.** In addition, the law sets a new minimum contaminant level for copper, notes Richard W. Church, executive director of the Plastic Pipe and Fittings Assn. in Glen Ellen, Ill. "Copper now must be examined as a primary contaminant, as opposed to a secondary contaminant," he asserts. In setting a primary drinking water standard for copper, EPA will be forced to closely scrutinize copper, he notes. "If I were a regulator," Church says, "and I were worried about meeting the federal drinking water standards, I would start looking very seriously at plastic pipe."

els of lead in their blood, she says, and more than 75% of all Americans are unacceptably exposed to lead.

**'No threshold.'** Some EPA employees agree with Silbergeld's arguments. There is a "whole pile of data showing there is no threshold" level below which lead ingestion is safe, says Ronnie Levin, an EPA technician who is preparing a cost-benefit analysis in support of the agency's 20-microg/l proposal. Recently, EPA's Clean Air Scientific Advisory Committee, which reviewed two documents related to the development of National Ambient Air Quality Standards for Lead, said new evidence shows that levels of lead in blood as low as 10-15 microg/deciliter of blood can cause adverse health effects. EPA's current lead standards, for both air and water, are based on the assumption that adverse effects were seen at blood lead levels above 30 microg/dl.

Another issue raised by Levin's forthcoming report is how much lead is actually getting into drinking water. Although EPA measures lead content in water mains that have been flushed to remove standing sediment, Levin's data indicate that 38 million people in the U.S. drink water with more than 20 microg/l lead. That is because lead solder on pipe joints in individual houses and from other sources gets into the water after it leaves the main.

Levin's study shows only one state, Illinois, exceeding its permissible 50-mi-

crog/l average limit. However, 19 states had individual samples well in excess of the 50-microg/l standard (table, left). In Illinois, of 133 samples, average lead levels in water were 87 microg/l. Levin also has found that soft water leaches out more lead than hard water.

Questionable data. Some EPA officials contend that Levin's data are flawed. Denise Murk, a state project officer for Illinois and Wisconsin at EPA's Region 5 (Chicago), says that the test results are "a misrepresentation." One sample—tested at 10,000 microg/l—pulled the average up for Illinois, she says. "All it says is that they had one really bad sample in the group."

EDF's Silbergeld also feels the data are questionable, but comes to the opposite conclusion. "The problem," she says, "may be even worse than that sketched in the EPA study, because much of the data was taken inaccurately and does not capture hot spots, or variations in lead contamination, which are not reflected by averaging data."

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l. Institute tends to support Levin's assertion that lead is a drinking water problem. The institute, Gottesman says, commissioned McKesson Environmental Sciences (Dublin, Calif.) to conduct a series of leachate tests using a protocol designed by the state of California that compared a copper piping system using lead solder at the joints with chlorinated

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by the Vi-



Gottesman: Plastic pipes offer greater safety.

nyl Institute tends to support Levin's assertion that lead is a drinking water problem. The institute, Gottesman says, commissioned McKesson Environmental Sciences (Dublin, Calif.) to conduct a series of leachate tests using a protocol designed by the state of California that compared a copper piping system using lead solder at the joints with chlorinated

PVC (CPVC) pipe. A conclusion of the 75-day study, which was completed early this summer, is that the levels of lead and copper leachate were "very high and potentially unhealthy," Gottesman says. When a common home water softener was used in one test, he says, copper and lead levels increased over the entire 75-day period and eventually exceeded EPA drinking water standards. For CPVC pipe, he adds, no highly toxic materials leached into the water.

"What was found were some fairly low levels of solvent cement, some low levels of the materials used in the cement," Gottesman says. That leachate decreased rapidly, he notes. "The health effects of metal pipe leachate appear to be much greater. We're having a risk assessment document done, but it's not yet complete." Still, he predicts the study will show that plastic piping is a safe material. "Plastic pipe has been tested by the National Sanitation Foundation for well over 25 years," he notes.

**Building bans.** Despite the long history of PVC pipe safety tests, many state building codes ban the use of plastic pipe. Snider hopes that the renewed "focus on lead . . . may lead to the opening up of building codes" to include PVC pipe. Until now, Snider says, plumbers' unions have successfully fought the inclusion of PVC pipe in the codes. "We have certainly seen signs of that," he contends, "notably in California."

EPA's Levin also has heard arguments from plumbers against banning lead solder. Their reasoning, she says, is that using tin antimony, the only flux substitute, is too expensive. "That's true as far as the solder cost goes, since they will have to use tin antimony," she says, but the price increase will only go "from \$2/house to \$4/house."

Plumbers also argue that using plastic pipe as a substitute for metal pipe systems is dangerous because, should a building catch fire, the fumes from the PVC pipe would be toxic. Also, they contend, the solvent used to join the pipe sections gives off dangerous fumes.

Plumbers "will tell you they're only interested in the safety of the pipe," says one plastics industry representative. However, he believes the real reason for their opposition is economic. "Plastic pipe is so easy to install, it creates a market for do-it-yourselfers."

In the end, say PVC resin and pipe manufacturers, the adverse health effects of lead solder and metal pipe are bound to force increased use of plastic pipes. "I would have to say that the ultimate effect" of all the new informa-

tion condemning lead pipe and lead solder "should be an increase in the use of plastic pipe," says Gottesman. "That's what we would be looking for." □

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