

House Oversight and Government Reform Committee Subcommittee on Domestic Policy Hearing

Jun 10, 2010 (Congressional Documents and Publications/ContentWorks via COMTEX) --

Good afternoon, Mr. Chairman and members of the Subcommittee. I am Al Dube, National Sales Manager, Dental Division of SolmeteX, a division of Layne Christensen. SolmeteX was founded to transition [technologies](#) from biopharmaceutical separations to treat water, wastewater and process waters. Early in SolmeteX history the focus was to create sorbent technologies resulting in a leap in technology for the [water treatment](#) marketplace. SolmeteX was successful at transferring biopharmaceutical advanced affinity chromatography type of separation to the water treatment industry. Using this [innovative technology](#), SolmeteX was successful in reducing mercury discharge from clinical laboratories, hospital effluents, industrial wet scrubber discharge and industrial discharge earned SolmeteX an EPA Innovator award. With the introduction of the HgS amalgam separator, SolmeteX created the market leading device for reducing mercury concentrations from dental facilities.

Introduction:

SolmeteX has a vested interest in the prospect of dental office [wastewater](#) discharges being filtered through amalgam separator systems. As the leading amalgam separator manufacture in US sales with approximately 70% market share, SolmeteX would profit from the increase in separator installations should separator mandates be enacted. For this reason, it is my intent to present data without opinion. I will attempt to stick to the data. My focus will be in two primary areas.

1. A summary of amalgam separators and their impact at POTW's with new data on the impact of treatment.
2. Memorandum of Understanding and the relationship to SolmeteX sales

AMALGAM SEPARATORS AND THEIR IMPACT ON POTW'S

I think it is important to understand amalgam separators are devices used to collect solid waste particulate from dental vacuum lines. The process for separation utilizes one or more of four basic separation methodology, sedimentation, mechanical filtration, chemical or centrifugal. These technological principles have been utilized in water treatment for years to remove particles in high and low flow [applications](#). Of the amalgam separators available in the US most use sedimentation as the primary technology for separation. Regardless of the methodology utilized the efficiency of amalgam separators across the spectrum of manufactures is effectively the same.

The US EPA, State and local regulatory community continually look for point source opportunities within their Pollution Prevention (P2) programs to reduce contaminants prior to entering the sewer system. Sewage treatment plants do not have the capability in large scale to remove metals such as mercury from influent wastes at the treatment plant. Reductions of contaminants at the source greatly increases the opportunity to prevent contaminants entering the [environment](#) through the waste channels of sewage treatment plants. Amalgam is comprised of 50% mercury by weight copper, silver, lead and other metals discharge from dental offices has been designated as the most significant source of mercury to sewage treatment plants. The use of amalgam separator reduces the mercury loading most significantly within biosolids and also effluent water discharges from Publicly Owned Treatment Works (POTW's)

Many studies document the effectiveness of amalgam separator installation in dental facilities with significant reductions of mercury concentrations at POTW's. The Paris Commission (PARCOM) in their Recommendation 93/2 states "the discharge of dental amalgam into municipal sewage systems has been significantly reduced by the use of separation equipment in recent years, in most cases by at least 95%." In Minnesota two POTW's reported reductions in mercury in biosolids, 44% at Hastings and 29% at the Cottage Grove facility in a three month period. In Seattle, King County reported a mercury reduction in the biosolids at approximately 50%. The US Navy, documented a 52% decrease in POTW biosolids while received Notices of Violations were reduced from 54 to 3.

In a recent US EPA audit of Security Sanitation District a small sewage treatment plant in Colorado under effluent mercury discharge violation action by the state of Colorado, mandated amalgam separator installation program for the six dental offices discharging to their POTW. The POTW's effluent permit limit for mercury discharge was set at 11 nanograms per liter (ng/l). After installation of amalgam separators effluent limits were reduced to at or below the permitted limit. A SolmeteX polishing system consisting of a combination of chemical and mechanical filtration was installed at the closest dental office to the POTW. Additional mercury reductions were recognized resulting in an averaging 8.13 ng/l below the required 11ng/1 permitted limit. The US EPA audit attributes the mercury reductions directly to the installation and maintenance of the amalgam separator systems. In recent years a white paper presented by the National Association of [Clean Water](#) Agencies (NACWA) suggested significant reductions of mercury in biosolids. NACWA noted a reduction in effluent mercury concentrations but found less impact at below 10 ng/l.

MEMORANDUM OF UNDERSTANDING

In December of 2008, US EPA, the American Dental Association (ADA) and NACWA entered in to a Memorandum of Understand dedicated to the implementation of best management practices as defined by the ADA to include the installation of amalgam separators on a voluntary basis.

As a result of the MOU much discussion has occurred within non-regulated states concerning this issue. South Carolina, Missouri, North Dakota, Illinois and Iowa have all contacted SolmeteX since the MOU was signed requesting the possibility of an endorsement. These inquiries were unsolicited by SolmeteX. The Missouri Dental Association this past March launched a BMP program designed to educate their dental members with the desire to have members install amalgam separators. The initial program involved newly designed promotional materials and a [presentation](#) from a former ADA researcher.

As a function of the MOU, a baseline of amalgam separator installations is to be developed with the intent of tracking future progress of the voluntary installation of amalgam separator. Two surveys were administered by the ADA: an electronic version and a paper version. Results of the surveys suggest 51% of dental facilities in the US and 36% of dental facilities in non-regulated states had installed amalgam separators.

The US EPA "Health Services Industry Detail Study, Dental Amalgam (August 2008)" suggests the potential number of dental facilities in the US placing or removing amalgam to be approximately 122,000 facilities. An ADA marketing document published in 2007 reflects states a numeric total of 228,115 dentists representing all US dentists and dental students. Of the 228,115 dentists, 44,575 represent specialists who do not place or remove amalgam leaving 184,480 general practitioners. Assuming that 1/3 of general practitioners practice in multiple dentist facilities an estimated 121,756 facilities would require the use of an amalgam separator corroborating EPA assessment of 122,000 facilities. ADA's estimate of 51% installations would suggest 62,220 installed separator units in US dental facilities. Manufacturers data gathered by EPA suggests approximately 26,500 separators sold with two manufacturers not reporting. It is my assessment companies not reporting represent an additional 12,000 units suggesting approximately 38,500 units sold in the US or approximately 32% of dental facilities who place or remove amalgam currently have installed amalgam separators.

SolmeteX data is segregated in to three queries, regulated states, partially regulated states and non-Of the total systems sold, 13% of systems have been sold in non-regulated states (17,398 systems sold in regulated or partially regulated states compared to 2,213 systems sold in non-regulated states). There was no increase in the number of systems sold to non-regulated states between 2008 and 2009 the first year of the MOU. From 2008 to 2009 approximately 19% of the units sold were in non-regulated states.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
States with Regs	161	33	717	1,716	850	1,074	1,520	3,130	1,861	11,061
State wi part. Regs	38	83	845	587	799	652	978	1,353	993	6,328
States without regs	57	30	334	278	52	189	210	532	531	2,213

Regulatory action at this time is relatively slow. Of the current state regulations currently in force Oregon is the next deadline to arrive, January 1, 2011. The effective date of the regulation was January 1 of 2008, providing three years

before the deadline. Our estimate of dental facilities in Oregon requiring amalgam separators based on the previously describe dental facility formula is approximately 1900 facilities of which 634, (approximately 33%) have purchased a SolmeteX amalgam separator to date. There are three amalgam separator manufacturers in the northwest, so the possibility of there being a greater number of units sold in Oregon is a distinct possibility. However, based on previous state deadlines, approximately 80% of the systems were sold in the last 4 months prior to the deadline as demonstrated in the graph below.

The above graph is based on actual sales data for five regulated states where SolmeteX amalgam separators were sold. The "Y" axis is the percentage of sales within each represented state. This is a representation of the percentage of total sales in each state approaching the designated deadline.

In Connecticut, a year after the required deadline, we estimated that 20 -25% of required dentists had not purchased separators. The Connecticut DEP sent a letter to all dentists requesting installation data, within the next two weeks, SolmeteX sold approximately 160 units into the state of Connecticut. Similarly, New York's regulatory deadline for amalgam separators was May 12, 2008. I estimate that approximately 30 -40% of New York dentists have not purchased and installed amalgam separators at this time. It is difficult to confirm this estimate however as the reporting requirements were not established at a central location but with individual POTW's. I am not aware of any data from New York Department of Environmental [Conservation](#) detailing any amalgam installation data.

SUMMARY

In summary, the data presented illustrates the following:

1. Amalgam separators are solids collectors which when installed have a proven effect of reducing mercury loading in both influent biosolids and effluent POTW discharge.
2. Sales of amalgam separators in non-regulated states have not to this point been influenced by the Memorandum of Understanding signed by US EPA, ADA and NACWA
3. Sales of amalgam separators are dramatically influenced by the promulgation of regulations requiring the installation of amalgam separators and BMP's.
4. Sales time lines for purchasing of amalgam separation occurs primarily with the last four months of required installation deadlines regardless of the length of time granted before the deadline.

I would like to thank the Oversight subcommittee for the opportunity to present this data. My hope is this data is of value.

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