



Heavy Metal Remediation - Mercury

Simple Solutions to Complex Problems

EnviRemed products are SAFE, non-toxic non-corrosive, non-pathogenic and highly effective.

Problem

Heavy Metal pollutants leach into water and soil.

Solution

EnviRemed will cost-effectively reduce heavy metals.

EnviRemed applies a specially formulated slurry to reduce the amount of metals found in water and soil. The metals are contained in a crystalline structure that is not leachable according to the Toxicity Characteristic Leaching Produce (TCLP) Standards. These solutions help protect the environment and your bottom line.

The reagents have several remarkable characteristics that make them ideal for environmental remediation on land and in water. They have an excellent trace metal and metalloid binding capacities and, equally importantly, elements

that are bound when the material is used to treat contaminated water or soil are held very tightly. Furthermore, the longer the spent Virotec reagents are left to age after use, the more tightly the bound elements are held. As the residue ages, some new metal-trapping capacity develops.

Mercury Case Study

One of the world's largest lead and zinc smelters had major environmental problems due to the long-term on-site storage of hazardous mercury contaminated solid waste. Leachate from this stored waster material was being discharged into the local environment in Australia, which prompted the smelter to find a solution before facing possible prosecution by the Environmental Protection Agency ("EPA").

The key objective was to immobilize the heavy metals in the filter cake in such a way that these potentially hazardous elements, which included mercury, arsenic, lead and zinc, could not leach back into the environment.

H ₁	Remediated Metals															He ₂	
Li ₃	Be ₄											B ₅	C ₆	N ₇	O ₈	F ₉	Ne ₁₀
Na ₁₁	Mg ₁₂											Al ₁₃	Si ₁₄	P ₁₅	S ₁₆	Cl ₁₇	Ar ₁₈
K ₁₉	Ca ₂₀	Sc ₂₁	Ti ₂₂	V ₂₃	Cr ₂₄	Mn ₂₅	Fe ₂₆	Co ₂₇	Ni ₂₈	Cu ₂₉	Zn ₃₀	Ga ₃₁	Ge ₃₂	As ₃₃	Se ₃₄	Br ₃₅	Kr ₃₆
Rb ₃₇	Sr ₃₈	Y ₃₉	Zr ₄₀	Nb ₄₁	Mo ₄₂	Tc ₄₃	Ru ₄₄	Rh ₄₅	Pd ₄₆	Ag ₄₇	Cd ₄₈	In ₄₉	Sn ₅₀	Sb ₅₁	Te ₅₂	I ₅₃	Xe ₅₄
Cs ₅₅	Ba ₅₆	La ₅₇	Hf ₇₂	Ta ₇₃	W ₇₄	Re ₇₅	Os ₇₆	Ir ₇₇	Pt ₇₈	Au ₇₉	Hg ₈₀	Tl ₈₁	Pb ₈₂	Bi ₈₃	Po ₈₄	At ₈₅	Rn ₈₆
Fr ₈₇	Ra ₈₈	Ac ₈₉	Rf ₁₀₄	Db ₁₀₅	Sg ₁₀₆	Bh ₁₀₇	Hs ₁₀₈	Mt ₁₀₉	Ds ₁₁₀	Rg ₁₁₁	Uub ₁₁₂	Uut ₁₁₃	Uuq ₁₁₄	Uup ₁₁₅	Uuh ₁₁₆	Uus ₁₁₇	Uuo ₁₁₈
	Ce ₅₈	Pr ₅₉	Nd ₆₀	Pm ₆₁	Sm ₆₂	Eu ₆₃	Gd ₆₄	Tb ₆₅	Dy ₆₆	Ho ₆₇	Er ₆₈	Tm ₆₉	Yb ₇₀	Lu ₇₁			
	Th ₉₀	Pa ₉₁	U ₉₂	Np ₉₃	Pu ₉₄	Am ₉₅	Cm ₉₆	Bk ₉₇	Cf ₉₈	Es ₉₉	Fm ₁₀₀	Md ₁₀₁	No ₁₀₂	Lr ₁₀₃			



The waste contained approximately ten percent of mercury by weight (approx. 3,500 tons) and was extremely leachable. Through the successful application of our technology the predominant hazard, mercury was bound in such a way as to make it chemically inert and environmentally safe for long term landfill disposal.

The treatment consisted of the waste being vacuumed from the waste containers into the stabilization plant whereby a series of rotary mixers combined the filter cake with the patented reagent.

A series of samples were analyzed by a NATA certified laboratory over the period of the project with the results of the treated filter cake shown in Table 1. Meeting the TCLP (Toxicity Characteristic Leaching Procedure) criteria was essential for the treated waste material to be accepted for disposal to landfill.

EnviRemed's technology provided an effective and economic solution in successfully treating the mercury contaminated filter cake. The smelter was able to meet strict regulatory waste treatment standards, avoiding future liabilities and helping to safeguard the environment.

EnviRemed

EnviRemed is a consortium of top scientists, engineers, contractors and businessmen who have united to offer the best available technology to provide safe and natural solutions for governmental authorities, corporations, and private citizens to create a cleaner future for our planet.

Available worldwide, we offer environmentally friendly solutions that help your bottom line and the expertise to implement them. Through simple processes we have saved our customers millions of dollars, thousands of man hours, and improved the way they take care of their business.

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Table 1

Parameter	Result Range TCLP mg/L	Treatment Target TCLP mg/L
Mercury	<0.001	0.1
Arsenic	<0.1	0.5
Cad-mium	<0.05	0.5
Copper	<0.1	100
Lead-	<0.1	5
Selenium	<0.05	1
Zinc	<0.1	500