

# Using Mercury Reductive Enzymatic Cleaners to Improve Amalgam Separation Functionality

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Mercury (Hg<sup>2+</sup>) compounds are:

- highly cytotoxic
- highly soluble
- absorbed into tissue
- capable of passing the blood/brain barrier
- a major global pollutant
- Not captured through amalgam separation
- They are formed through microbial action in the oral cavity drawn into the evac system.
- Anaerobic (low oxygen) conditions and SRB (sulfur reducing microbes) can cause methylation of amalgam particles from restoration ablation within the evac system.
- These compounds are discharged into wastewater and sewage ending up in lakes and oceans where, via the food pyramid, find their way into larger human edible fish.
- Although most particles are captured through amalgam separation, soluble Hg<sup>2+</sup> compounds are released to the wastewater system.

## How PowerScrub with Mereduce microbes works.

Molecule cleaving enzymes weaken foulant bonds.

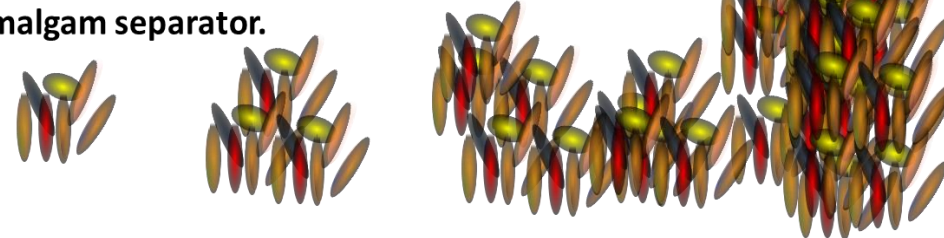
Bacteria manufacture digestive enzymes in response to the type of foulant and system environment.

Based on the volume of foul, the bacteria multiply.

The bacteria reside in the system overnight providing continual action.

When the organic foul (food) is gone, the bacteria is flushed away along with released nonorganic foulants.

This occurs within the evac system lines, pump and amalgam separator.



This improves functionality, particle settlement and capture within the separator canister



Using Nature to transform toxic mercury, PowerScrub contains Mereduce Microbes which, through an electron transfer, soluble Hg<sup>2+</sup> are transformed into capturable Hg<sup>0</sup>.

The mercuric reductase enzymes, produced by the Mereduce microbes, protect the digestive microbes from damage by mercuric compounds within the evac system and amalgam separator.

Toxic mercury conversion with Mereduce microbes



Table 1. Results as read with the SenSafe® Mercury Check strips

Week 1 High level	SOLUTION A			SOLUTION B			CONTROL		
	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
Baseline	1000	1000	1000	1000	1000	1000	1000	1000	1000
Day 1	200	200	200	200	200	200	1000	1000	1000
Day 2	100	100	100	100	100	100	1000	1000	1000
Day 3	50	50	50	100	100	100	1000	1000	1000
Day 4	0	0	0	50	50	50	1000	1000	1000
Day 5	0	0	0	0	0	0	1000	1000	1000
Week 2 Low level	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
Day 1	0.002	0.002	0.002	0.002	0.002	0.002	0.0	0.0	0.0
Day 2	0.002	0.002	0.002	0.002	0.002	0.002	0.0	0.0	0.0
Day 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Day 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Day 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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For additional information contact:

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