

# Capture of gaseous mercury

## THE EXISTING PROBLEM OR ISSUE

Gaseous elemental mercury (GEM) is generated from artisanal and large scale gold mining, coal combustion, non-ferrous metallurgy, cement production, and other industrial sources.

This gas is highly toxic with severe impacts on biota, including humans, where it effects the central nervous system, neural networks, various organs, and the skeletal and muscular tissue. Once emitted, the gas is widely distributed in the atmosphere, making remediation difficult.

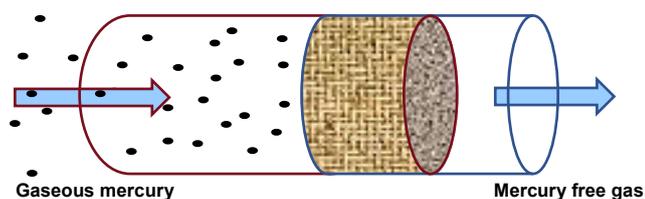
GEM has proved very difficult to capture, and much research effort has been devoted to this problem, with only minimal success to date. By far the most effort has gone into oxidising point source GEM, such that it may be captured by electrostatic means. This oxidizing process is expensive, can produce voluminous and harmful waste products, is not very efficient, and has limited applicability

## OUR SOLUTION

We have developed a simple and economical way to directly capture GEM without the need for prior oxidizing, or indeed any other prior physico-chemical treatment. We designed a filter constructed of a coconut fibre substrate, the surface of which is coated with a solid metal halide compound, bound with a gas permeable polymeric matrix.

GEM is efficiently scrubbed from the gas stream, and remains stably and robustly bound to the substrate in a solid and insoluble form. The mercury can readily be isolated and recovered chemically from the filter using existing technology.

The filter geometry can be configured to any desirable shape, including as a geotextile mat for large surface areas such as heap leach pads or large terrestrial areas. Other configurations include pads, face masks, discs, columns etc.



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ADVANTAGES	BENEFITS
Efficient	Scrubs over 99% of GEM compared to 50-80% using conventional technology
Simple	Does not require any pre-treatment of GEM
Safe	Does not produce harmful waste products
Cost	Is inexpensive to manufacture and uses renewable resources
Recovery	The mercury can be easily isolated and recovered

## APPLICATIONS

- ✓ Artisanal and large scale gold mining
- ✓ Coal combustion
- ✓ Non-ferrous metallurgy
- ✓ Cement production
- ✓ Terrestrial site remediation
- ✓ Gas extraction
- ✓ Waste treatment facilities
- ✓ Other industrial settings

## INVENTORS

Damien McCarthy, Grant Edwards

## INTELLECTUAL PROPERTY POSITION

PCT patent application filed

WO 2019/046882

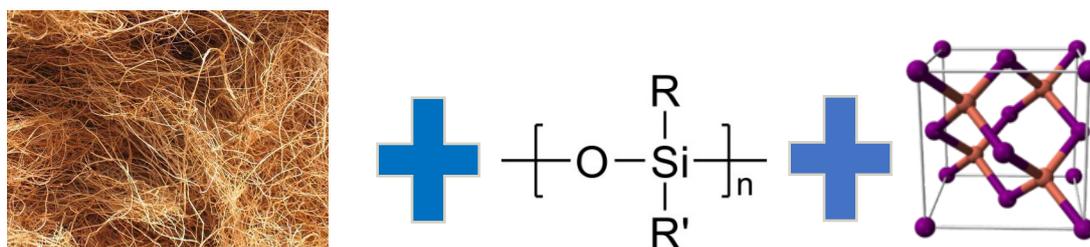
## COMMERCIAL OPPORTUNITY

Seeking a partner interested in commercialising or licensing this technology.

Contact Anna Grocholsky  
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## COCONUT SUBSTRATE ADAPTED TO CAPTURE MERCURY



CAN BE CONFIGURED TO ANY DESIRED SHAPE

