

A CLEANER NON-TOXIC APPROACH TO RECOVERING PRECIOUS METALS From eWaste

Capability Summary

Clean Urban Mining, a part of the Clean Earth Technologies group, uses non-toxic recovery agents and processes as a replacement for toxic cyanide and acids in precious metal recovery from eWaste PCB's.

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eWaste – The Market

eWaste is now the fastest-growing waste stream in the world with some forms of it growing exponentially. The UN in a recent paper referred to it as a **'tsunami of eWaste'**.

It is estimated that 20-50 million metric tons of e-waste is disposed in landfills around the world each year.

Reports are that APAC is growing at a faster rate than the rest of the world and accounts for 40% of the global eWaste.

The gold content found in eWaste PCBs is much higher than the average levels found in gold ore, which is currently 5-10 g of gold per ton of ore.

Legislation is changing the landscape globally with 188 countries having signed up to The Basel Convention 1992 and have ratified the control of transboundary movements of hazardous wastes and their disposal, banning the export of eWaste.

Company Profile

Clean Urban Mining is the future of precious metal recovery from eWaste. Our passion for commercialization is at the heart of our ESG and Circular Economy leadership to address real-world problems.



Safer and More Sustainable Practices:

Cyanide- and acid-free, delivering capabilities and processes that take leakages, spillages, or exposure to hazardous chemicals out of the equation.



Future-Focused:

Kinder to the environment in production, use and disposal, contributing to a circular economy, reducing landfill, and a healthier planet for future generations.



Ethically Responsible:

The safest and most sustainable precious metal recovery process from PCB's to date, with benefits for communities, companies, governments, and workers.

We will be building Processing Factories using our unique solution to recover precious metal from eWaste PCBs. The first factory will be built in Adelaide with a second factory likely to be built on the East Coast of Australia.

This will give us a blueprint for building similar processing factories in other countries either via Joint Ventures, Franchising or Direct.

In parallel we will work with collaborators to progress the polymer/plastics building material to further reduce waste going to landfill moving towards a complete circular economy.

Our Unique Proposition

There are 3 distinct processes required to recover precious metals from eWaste:

Leaching: Our patented leaching process uses a nontoxic reagent that is no more harmful than pool chemicals. We have an end-to-end process that does NOT need to use toxic acids.

Crushing and Separation: We use standard mechanical processes to separate imbedded metals from the plastic fiber. Plastic fiber can then be recycled.

Recovery: Our patented polymer extracts the metals from the leach solution. This polymer has recently won the Australian Prime Ministers Award for scientific innovation and uses Elemental Sulfur and Vegetable Oil as its base.

In addition, the polymer combined with plastic/fiber waste can be used for creating building products. This ensures that all material can be recycled with zero going to landfill.

- Completely non-toxic reagents
- No need for acid scrubbing or decomposition
- Wastewater is non-toxic and is re-used back into the system
- Plastic Fiber is recycled enabling a true circular economy
- Patented Polymer used for metal recovery
- Massively reduced electricity requirements leaving a minimal carbon footprint

Accreditation

We have acquired several patents and work closely with Flinders University in Adelaide, Australia to find new and novel ways of recycling waste in a non-toxic way.

One of these patents is the creation of a new Polymer that can selectively recover Precious Metals from our leach solution.

This was created by Dr Justin Chalker from the Chalker Lab at Flinders University and recently won the Australian Prime Minister's award for Scientific Innovation.

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Waste – Recycling of Non-Metals

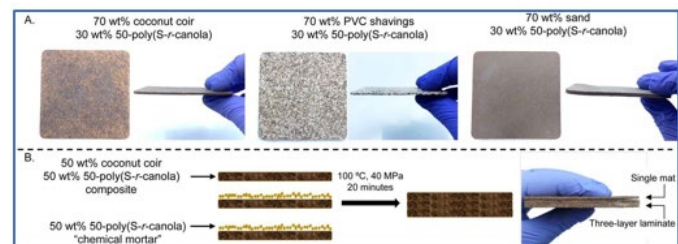
The same polymer that is used for recovering precious metals can also be combined with other waste materials to create construction materials.

The polymer can be combined with eWaste Fiber, plastic PVC, coconut husk, carbon fibre etc to create a new material that further prevents waste from going to landfill.

We continue do research in this area and would welcome organisations with a circular economy mind set to collaborate with to take this further.



Polymer can be used to create new material under compression



Polymer can be mixed with other materials

AWARD WINNING TECHNOLOGY FOR INNOVATION



THE PRIME MINISTER'S
PRIZES FOR SCIENCE