



BacTech Files Patent on Process That Turns Toxic Mine Water Into Saleable Iron and Acid

New process is designed to replace mountains of limestone sludge with clean iron crystals and reusable acid, recover valuable metals along the way, and lock arsenic into a small, stable form.

FOR IMMEDIATE RELEASE

TORONTO, Ontario – October 20, 2026 – BacTech Environmental Corporation (CSE: BAC) (OTCQB: BCCEF) ("BacTech" or the "Company") has filed an Australian provisional patent application for a process that recovers iron and sulphuric acid from the acidic, iron-rich liquid produced by mining and metal refining. The industry's usual approach is to neutralize that liquid with limestone and bury the sludge that results. BacTech's process instead turns it into two products that can be sold or reused.

The filing is titled *"A Process for Producing Concentrated Iron and Acid Streams from an Acidic Ferric Iron Containing Solution."* A provisional application secures BacTech's priority date for the invention. The Company then has 12 months to file a full patent application.

The problem: a costly waste nobody wants

Acidic, iron-laden water shows up wherever sulphide ores are processed or exposed to air. Sources include gold plants that use bacteria to unlock gold, copper and zinc operations, old tailings piles, and acid mine drainage. Along with iron and acid, this water usually carries small amounts of copper, zinc, rare metals and, often, toxic arsenic.

The standard fix is to add crushed limestone until the acid is neutralized. According to the filing, treating just **one tonne of dissolved iron** this way:

- uses about **five tonnes of limestone**;
- creates about **eight tonnes of sludge**, plus another **eight tonnes of water** permanently trapped inside it;
- throws away the iron, the acid and any valuable metals in the water; and
- leaves a sludge that must be monitored for years in case metals leak back into the environment.

Where arsenic is present, it is buried along with the iron in a bulky waste that is typically less than 4% arsenic, so a large volume has to be stored so as to contain a small amount of arsenic.

How it works, in four steps

BacTech's process cleans the water first and then splits it into its useful parts. Neutralizing everything together destroys those parts.

1. **Tame the iron.** Iron in this water is in a form that clings to everything and settles out as sludge. A simple gas treatment switches it to a gentler form that stays dissolved and well-behaved. This step *makes* more acid, which is also benefit since there is a market for this acid.
2. **Pull out the metals and the arsenic.** A second treatment makes copper, zinc, arsenic and other metals drop out as solids while the iron stays in the liquid. Valuable metals, including critical minerals such as indium, gallium, germanium, scandium and rare earths, can be recovered and sold. The arsenic is concentrated into a small, dense solid and converted into a stable mineral for safe long-term storage.
3. **Split iron from acid.** The cleaned liquid is separated using specialized filters (membranes) and/or crystallization, which works much like sugar forming crystals from cooling syrup. The result is clean iron sulphate crystals on one side and a stronger acid on the other. Water removed along the way can be reused on site.
4. **Put both products to work.** The iron crystals have established markets in water treatment, cement, fertilizer, animal feed and pigments. They can also be stockpiled as an asset. The acid can be reused at the mine or supplied to copper and uranium operations that use it to extract metal from ore.

What used to be one pile of sludge becomes marketable metals, iron and acid to use, and a small amount of arsenic in stable form. Recovered water can also be reused.

Why it matters

- **Less waste, less limestone.** Iron and acid are recovered instead of being buried as sludge, so the tonnes of limestone and the sludge ponds that follow can be greatly reduced.
- **Waste becomes revenue.** One waste stream yields up to three products: iron sulphate, acid and recovered metals. Iron losses in the cleaning steps are expected to be only about 1–3%.
- **Safer arsenic management.** Arsenic ends up in a compact, concentrated, stable form instead of being spread through a large volume of low-grade waste.
- **Critical minerals recovered.** Metals now lost to waste, such as indium, gallium, germanium, scandium and rare earths, can be captured.

- **A new acid supply for remote mines.** Acid is the main reagent cost for many copper and uranium operations, and supply is tight in landlocked regions. In one worked example in the filing, the process raises acid strength roughly twentyfold. The iron-bearing acid it makes is also less corrosive and less prone to clogging pipes and ore heaps than the alternatives.
- **Cleaning up legacy stockpiles.** The zinc industry holds very large stockpiles of iron-rich residues (jarosite and zinc ferrite). The process can dissolve them, potentially turning a long-term liability into a source of iron and acid while shrinking the piles.
- **Projects that can be built in stages.** Because the iron crystals store and ship easily, an operator can recover metals first and use that cash flow to fund iron processing later.

Management comment

"For decades, the mining industry has treated acidic, iron-rich water as a problem to be buried," said Dr. Paul Miller, Vice-President Technology of BacTech. "We see it differently. That water holds iron, acid and often valuable metals, and our process is designed to recover all three while dealing with arsenic responsibly. Every tonne of sludge we avoid is a tonne that never needs to be monitored again. It also fits naturally with our bioleaching work, which produces exactly these kinds of streams."

About BacTech Environmental Corporation

BacTech Environmental Corporation is a leader in commercial bioleaching, using naturally occurring bacteria to recover valuable metals while stabilizing harmful elements such as arsenic. The Company's patent-pending Zero-Tailings™ technology is designed to recover critical and precious metals from historic and active mine tailings and convert former waste into stable, environmentally benign products. BacTech trades on the Canadian Securities Exchange (CSE: BAC), the OTCQB (OTCQB: BCCEF) and the Frankfurt Stock Exchange (FSE: 0BT1).

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Cautionary statement regarding forward-looking information

This news release contains forward-looking information within the meaning of applicable securities laws. It includes statements about the filing of a complete patent application and the grant of any patent, the expected performance of the process, the recovery and sale of iron sulphate, acid and other metals, the stabilization of arsenic, and the commercial application of the technology. Forward-looking information is based on management's current assumptions and is subject to risks and uncertainties that could cause actual results to differ materially. These include that a patent may not be granted, that results may not be achieved at commercial scale, market conditions for recovered products, the availability of financing, and regulatory and permitting requirements. Readers should not place undue reliance on forward-looking information. The Company undertakes no obligation to update it except as required by applicable securities laws.