

# Canadian company offering technology for elimination of waste activated sludge in wastewater

## Summary

Profile type

**Technology offer**

Company's country

**Canada**

POD reference

**TOCA20230601016**

Profile status

**PUBLISHED**

Type of partnership

**Commercial agreement with technical assistance**

Targeted countries

- **Germany**
- **Greece**
- **Hungary**
- **Slovenia**
- **Denmark**
- **Finland**
- **Sweden**
- **France**
- **Ireland**
- **Romania**
- **Slovakia**
- **Poland**
- **Czechia**
- **Austria**
- **Spain**
- **Croatia**
- **Netherlands**
- **Portugal**
- **Estonia**
- **Lithuania**
- **Belgium**
- **Bulgaria**
- **Latvia**

- Luxembourg
- Norway
- Cyprus
- Italy
- Malta
- United Kingdom
- Iceland
- Switzerland

Contact Person

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Term of validity

**1 Jun 2023****31 May 2024**

Last update

**5 Jun 2023**

## General Information

### Short summary

Canadian SME offers a low-cost solution to some of the largest issues facing municipal wastewater treatment plants. Their technology assists with solids managements by liquefying Waste Activated Sludge (WAS), allowing for complete elimination of WAS aerobically and/or anaerobically.

Our client is seeking a partner to host a full-scale technology demonstration combining the three technologies to treat WAS. They would like to establish a commercial agreement with technical assistance.

### Full description

Canadian SME offers a low-cost solution to some of the largest issues facing municipal wastewater treatment plants. Their technology assists with solids managements by liquefying Waste Activated Sludge (WAS), allowing for complete elimination of WAS aerobically and/or anaerobically (providing twice as much biogas from WAS digestion). They also offer add-on technology for phosphorus nutrient recovery as fertilizer, and add-on technology for nitrogen nutrient recovery to recover nitrogen as fertilizer.

Our client's primary technology liquefies or breaks apart the cell walls of WAS microbes with an upgraded high pressure homogenizer machine. This process instantly converts the waste into bio-available food for the microbes back in the process, effectively harnessing the natural capability of both aerobic and anaerobic microbes to metabolize this new food very quickly. This also releases all the nutrients from within the WAS microbes.

The phosphorus nutrient recovery technology uses electricity to dissolve particulate magnesium metal to enable coagulation of solids and precipitation of dissolved constituents as struvite, increase pH, and produce hydrogen and oxygen gas bubbles that float solids for their separation. This mechanically simple system enables trouble-free operations.

Finally, the nitrogen nutrient recovery technology is simplified by the phosphorus recovery technology as this results in discharge at approx. pH 9 - pH 10. This allows for stripping of ammonia gas by spraying in a chamber. Scrubbing can then be done in a separate chamber with a spray of sulphuric acid, precipitating the world's most common fertilizer – ammonium sulphate.

Our client is seeking a partner to host a full-scale technology demonstration combining the three technologies to treat WAS, and they like to establish a commercial agreement with technical assistance.

#### Advantages and innovations

Eliminating WAS with our client's technology has many benefits. Firstly, WAS disposal today is difficult and expensive, whereas our client's technology is relatively easy and inexpensive to implement. Additionally, this technology uses the simplest and most efficient method known of lysing (popping) microbes, and has now applied this to WAS solids, thereby liquefying the WAS solids. The complete elimination of WAS at the facility (aerobically and/or anaerobically), produces up to double the amount of biogas from WAS digestion. Furthermore, the P and N nutrients released from the lysed microbes can be recovered as useable fertilizer with technology add-ons. This technology allows for three times the throughput capacity of the existing anaerobic facility that can defer the expansion of capital projects for many years. Our client's technology costs significantly less than their most comparable competitor. This saves small plants hundreds of thousands of dollars in operating costs annually, whereas larger plants can expect to save millions of dollars annually. The typical payback for the purchase of their technology is approximately two years, which is further reduced when considering the benefit of additional biogas. Another benefit of their technology is that it assists with reducing greenhouse gasses, which can help achieve climate action goals through energy self-sufficiency in facilities.

Our client's technology has also been de-risked with three full scale demos and pilot studies, with their full scale machinery operated for a period of four years back-to-back. They also have the full-scale equipment in the warehouse, so the typical upfront capital costs for a demo project can be significantly lower than usual.

#### Technical specification or expertise sought

#### Stage of development

**Available for demonstration**

#### IPR Status

**IPR granted**

#### Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 6: Clean Water and Sanitation**

## Partner Sought

#### Expected role of the partner

Our client is seeking two partners: one partner as a host facility for a full-scale demonstration project and another partner to establish a technology commercialization agreement.

Specifically, they are seeking operating facilities with CHP (combined Heat and Power) and/or RNG (Renewable Natural Gas) systems already operating to act as a host site for their technology. Our client's technology can provide up to twice as much biogas with a simple technology add-on, thereby increasing efficiency and revenue from existing installed systems.

The first step in this proposed partnership would be for our client to perform a business case to lay out the economic and other possible benefits, followed by the preparation of a detailed proposal with a collaborative project team involving significant local group participation.

Regarding a technology commercialization partnership, our client is seeking local companies. Our client aspires to licence the technology in various industry sectors and geographic areas to local companies that are established in industry sectors. Their technology is also applicable to municipal wastewater treatment, pulp and paper, oil refining, and food, beverage and meat processing plants – anywhere where microbial wastewater treatment processes create waste activated sludge that must be disposed of.

#### Type of partnership

**Commercial agreement with technical assistance**

#### Type and size of the partner

- **SME 11-49**
- **SME <=10**
- **Big company**
- **SME 50 - 249**

## Dissemination

#### Technology keywords

- **10003007 - Waste to Energy /Resource**
- **04006 - Biogas and anaerobic digestion (AD)**
- **04005009 - Energy from wastewater**
- **10004002 - Municipal Water Treatment**
- **10004006 - Sludge Treatment / Disposal**

#### Market keywords

- **08004002 - Chemical and solid material recycling**
- **06003009 - Biomass and Biofuels**
- **09008002 - Water, sewerage, chemical and solid waste treatment plants**
- **08004003 - Water treatment equipment and waste disposal systems**

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- **Iceland**
- **Switzerland**

Sector groups involved

- **Renewable Energy**