



COMPANY INFORMATION

Date: **March 30, 2020**

Company:	CharTech Solutions		
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BUSINESS CONTACT

TECHNICAL CONTACT

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City:	Toronto,	City:	Toronto,
State:	Ontario, Canada	State:	Ontario, Canada
Zip Code:	M3C 1T5	Zip Code:	M3C 1T5

BUSINESS HISTORY

How long have you been in business? Established in 1986 as Altech Technology Systems and renamed in 2018 as CharTech Solutions, a Toronto-based Cleantech subsidiary of CHAR Technologies, publicly traded on the TSXV ('YES.V').

Are you part of a larger company? Yes No

Did you exist as another company before this company was formed? Yes No *If so, what was that company's name?*

Altech Technology Systems was acquired by CHAR Technologies Ltd. and rebranded as CharTech Solutions

Number of employees? 15-20

What is your business structure? Subsidiary of CHAR Technologies Ltd.

What types of insurance and or surety do you provide?

Equipment warranties and system performance guarantees

Describe your business service(s). *For example: consulting, development, engineering, equipment sales, finance, other.*

CharTech develops and delivers innovative environmental technology solutions to eliminate air and water pollution, and convert challenging waste streams into renewable and valuable outputs, helping our clients contribute to the circular economy.

Describe your area or region of operation.

Global; focused on North America, we have a satellite office in Chile to represent South America, and have managed projects in Asia.

Does your company hold any patents or the rights to any patents? Yes No *If yes, please describe.*

CharTech Solutions through CHAR Technologies holds a number of patented solutions innovative processes and products.

Do you manufacture equipment? Yes No *If yes, please describe.*

We do not.

Do you integrate equipment manufactured by others? Yes No

If you integrate, please list the names of the companies you represent.

Depending on the project site, our turnkey pyrolysis system can be integrated to convert low value waste streams into high value outputs including biocarbons and renewable energy. We also integrate innovative air and water treatment technologies to treat effluent for safe discharge and/or reuse.

How do you answer potential customer's questions about financial strength of your company?

CharTech is a subsidiary of CHAR Technologies Ltd, a leading cleantech/ development and services company listed on the TSXV ('YES.V'). We specialize in delivering innovative technology and service solutions that are environmentally sustainable and cost-effective for our clients.

Do you offer technical/service support? Yes No *If so, what methods?*

Site evaluation, project design, engineering and constructions, operations and maintenance training and support.

Do you offer design services? Yes No *If yes, please describe.*

Our approach is to design customized, cost-effective wastewater solutions and integrate proven technologies to deliver solutions that meet and exceed regulatory compliance requirements and are cost-effective for our clients.

Do you offer financing? Yes No *If so, what terms?*

We provide a range of financing options including BOO (Build-Own-Operate) and BOT (Build-Own-Transfer)

Are you a full stop shop? *Design to construction to operate?* Yes No *If so, please describe.*

CharTech Solutions engineers and integrate the components for each facility, from design to managing fabrication and overseeing construction to operations, after evaluating the project needs and customer goals.

Do you have preferred partners? Yes No *If so, please list and provide contact information/identify partners by name.*

Preferred business partners include the Canadian Biogas Association, American Biogas Council, Business Development Bank of Canada (BDC).

Do you have any third-party verification/research that has been done on this technology? Yes No

If so, please describe.

We collaborate with leading research organizations, government agencies and other industry partners to enhance our technology and secure funding to advance our R&D and growth objectives.

Do you provide a performance guarantee? Yes No *If so, what are you guaranteeing?*

For example: up time, methane production, biogas production, parasitic load, throughput, O&M cost, percent recovery, other. Please describe.

Guarantees that we are able to offer will be site specific and dependent on our scope

Newtrient 9-Point Score Information

Is this technology currently operational on at least three North American dairy farms? Yes No

Does this technology have a record of reliable performance for more than 12 months on at least three farms? Yes No

Is this technology installed on at least 10 North American dairy farms? Yes No

What are the Installed capital costs of this technology? *Please clearly define what is and is not included, Ranges are acceptable.*

CharTech’s turnkey pyrolysis system capital costs for a dairy can range from \$2,000,000 to \$10,000,000.

What are the annual operating costs of this technology? Please clearly define what is and is not included, Ranges are acceptable.

\$5 per dry tonne of feedstock

What value does this technology or the products it makes, deliver to the farm? Please list identifiable economic, environmental, or community value (e.g. reduced cost, increased income, reduced odor, improved nutrient use, etc.).

CharTech’s pyrolysis system generates syngas from digestate. A small amount of syngas is used to power the system and the remaining gas is used to generate renewable energy to supply a portion of the dairy’s electrical demand. The pyrolysis process ensures there is a consistent and optimal solution to effectively manage digestate, reducing the environmental impacts of trucking and land application, while generating value through energy generation and producing a valuable biocarbon product.

Do you feel an in-depth Technology Information Request is needed to help people understand this technology? Yes No

Newtrient has an extensive technical information request document that can be provided, it is based on the information requested for applications to the USDA NRCS EQIP program.

Are there any other aspects of your business that you feel should be included in this document?

CharTech designs and integrates turnkey, advanced clean water technologies to deliver cost-effective solutions for the most challenging clients’ needs.

Our wastewater team specializes in high BOD applications, a common challenge for Food & Beverage processors, organics processors and RNG operations. These include:

- **Hydrokleen Closed Loop WWT Systems**
This innovative wastewater treatment system combines membrane filtration with biological treatment to effectively convert effluent into potable quality water for reuse on-site. This turnkey technology package offers a small footprint, high energy efficiency, reduced GHG emissions, and an overall improved quality of effluent.
The System also transforms high pollutant wastewater to high quality water for reuse, delivering an integrated, closed loop wastewater technology package that reduces the costs of both water consumption and wastewater treatment on-site.
- **Compact Moving Bed Bio-Reactor (MBBR)**
Our high-performance MBBR treatment technology utilizes a virgin polyethylene material Biochip with minimal thickness and a large surface area within the aeration tank. This creates a robust system with a compact footprint. The large surface area of our innovative MBBR + Biochip system produces only a minimal amount of sludge compared to conventional treatment methods. This Compact MBBR + Biochip system can handle large loads of wastewater while consistently achieving high-levels of contaminant reduction. It is a compact, cost-effective system that significantly reduces the costs of WWT discharge.
- **Advanced Reverse Osmosis (RO) Clean Water Systems**
Our clean water treatment team specializes in designing efficient and economical RO solutions to convert wastewater, raw water or treated effluent into potable quality water for reuse on-site. This is often applied in industries including food & beverage processing, oil and gas production, mining, and other industrial sectors. Our advanced semi-permeable membranes work like a filter, effectively treating salt and contaminants to produce abundant amounts of clean water. Our team also focuses on delivering automated systems, including remote monitoring and control of each stage within the treatment process. Whether it’s seawater, brackish or treated effluent water, CharTech Solutions’ advanced RO clean water technology offers high recovery rates with low energy consumption and less operating costs.

Please contact CharTech if you have interest in applying any of these technologies on your dairy.

