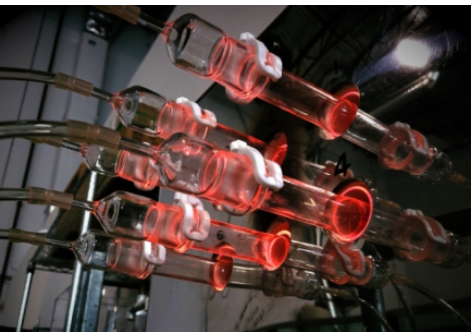
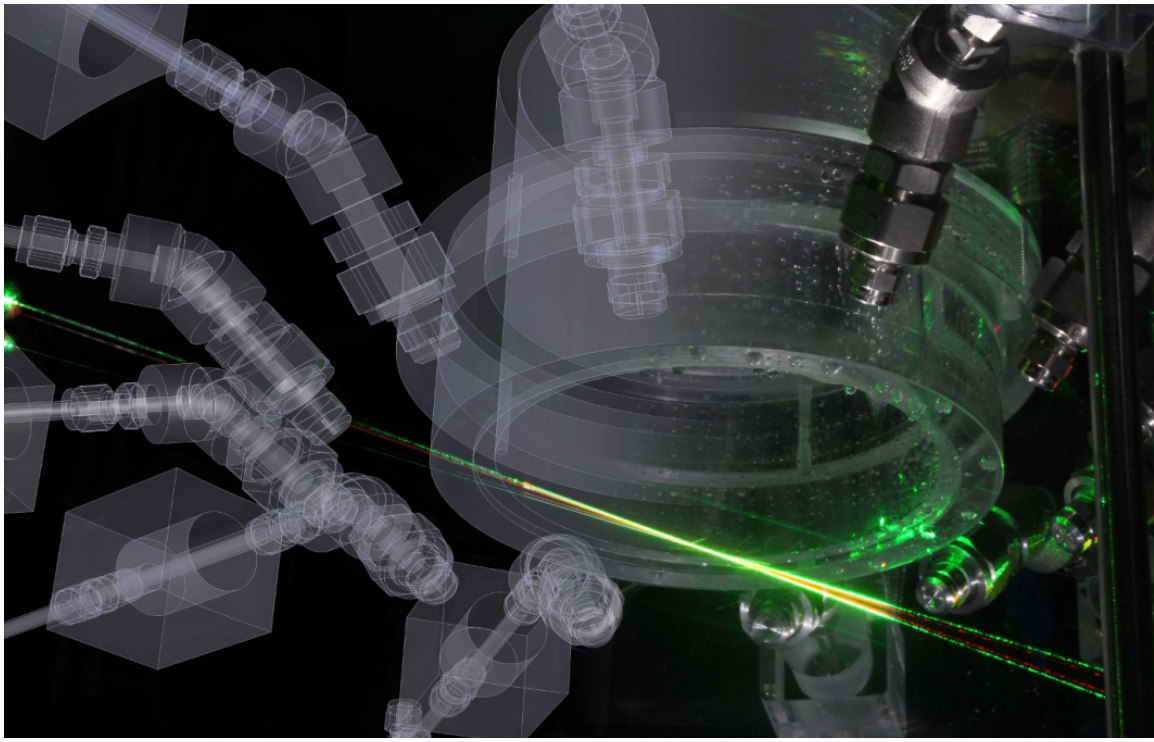
Coanda
A TETRA TECH COMPANY





Cleantech & Related Sectors

Advanced Process Engineering & Technology Development Services

Corporate Overview

Since its founding in 1995 , Coanda, A Tetra Tech Company, has built a legacy of *Leading with Science*® by providing innovative, technical solutions for clients all around the globe. We are passionate about solving some of the world's most difficult problems using the latest tools and technologies, offering a suite of industry-leading capabilities to tackle complex engineering science challenges for commercial customers, across a broad range of industries.

Strategic | Comprehensive | Client-focused

Coanda's highly knowledgeable engineering scientists bring world-class expertise using physical, numerical and analytical techniques to develop innovative solutions, whether solving challenges related to existing processes, or working on the development and optimization of new technologies.

Using our state-of-the-art facilities and advanced scale-up expertise, our technical teams support analytical simulations with sophisticated lab-scale experiments.


Coanda Head Office in Burnaby, BC

Canadian Roots | Multi-national Talent | Global Reach

Coanda has brought together scientists, engineers and technical staff from around the world to form our current team of over 65 employees, including over 25 Ph.D. scientists and 25 licenced Professional Engineers specializing in Chemical, Mechanical, Physics and Geotechnical disciplines, as well as Data Science, Machine Learning and Artificial Intelligence.

In 2021, Coanda became part of Tetra Tech, gaining access to the resources of a global, multibillion dollar company.

25+
Years of Engineering Research experience

65+
Technical staff including 25 PhDs and 25 P.Eng.

1500+
Projects executed in the last 2 decades

Services

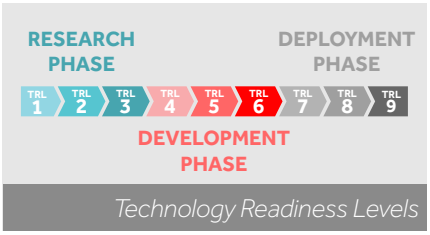
We take a holistic approach to tailor our solutions to each client's needs. We do not apply a "one-size-fits-all" strategy to problem solving. Rather, we use our breadth of expertise to tailor a solution, considering the details of the problem at hand.

Our integrated solutions combine extensive capabilities in physical, computational, and analytical modeling as well as also offering state-of-the art Machine Learning / Artificial Intelligence algorithms and data analyses with custom instrumentation and software.

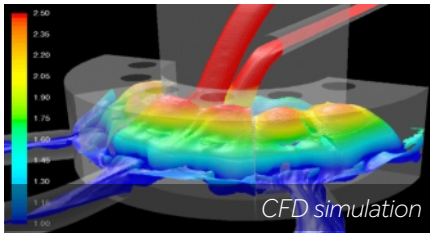
Process Modeling

We offer three key approaches to process modeling and optimization. This array of techniques allows for the optimum combination to be selected for any given problem.

- **Mathematical Modeling**
  This approach distills the most important aspects into a problem that is simple to solve by employing techniques such as integral momentum methods and empirical/semi-empirical correlations.
- **Physical Modeling**
  Many processes are difficult to study at full-scale. The flow environment may be hostile, inaccessible or suitable measurement techniques are not available, or costs are prohibitive. However, through the use of scale models it is possible to obtain useful data.
- **Computational Modeling**
  Computational Fluid Dynamics (CFD) is used as a design and optimization tool to predict the movement of fluids in, around and through systems without the need for a physical model. Real processes involving heat transfer, chemical reactions and fluid flow can all be modeled using our CFD tools.



Technology Readiness Levels


CFD simulation

Technology Development Support

We support the development of emerging technologies by providing the technical insight and hands-on experience needed to bring them to fruition and advance through various Technology Readiness Levels (TRLs). We support nascent technology through all of the life-cycle phases:

- Concept / discovery
- Scoping / business case evaluation
- Technology development (including Proof of Concept)
- Engineering design
- Testing & validation of prototypes / pilot
- Final design, marketing & launch

Scale-Up

The development of new industrial processes typically requires the scale-up of engineering processes and design criterion that have been optimized at reduced scale.

We have the expertise and experience to accurately characterize and measure the performance of small scale units such as bench-top and pilot-scale systems, and to develop appropriate commercial scale designs capable of achieving high production volumes while also meeting required process performance and product specifications.


Multi-phase flow loop model

Services - continued

Process Engineering

Our experience provides clients a holistic approach to problem solving, circumventing the potential pitfalls associated with a narrower understanding. We offer specific process engineering services that include the development of process flowsheets incorporating new technologies.

Outcomes may include heat and material balances, development of reactor models, scale-up relationships, control strategies, process drawings, and cost estimates.

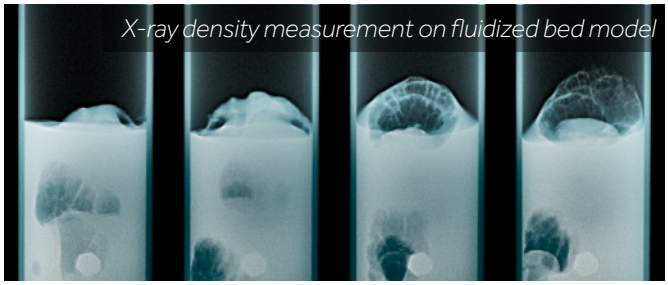
Artificial Intelligence, Data Science & Analytics

Our team of PhD-level mathematicians and physicists use the most recent Big Data Analytics and Machine Learning techniques to leverage data from instruments in a plant, remote sensors, or customer transactions.

These state-of-the-art analysis tools generate insights, identify patterns and extract correlations. With new levels of understanding our clients can improve existing processes or develop new ones.

Instrumentation & Equipment Design

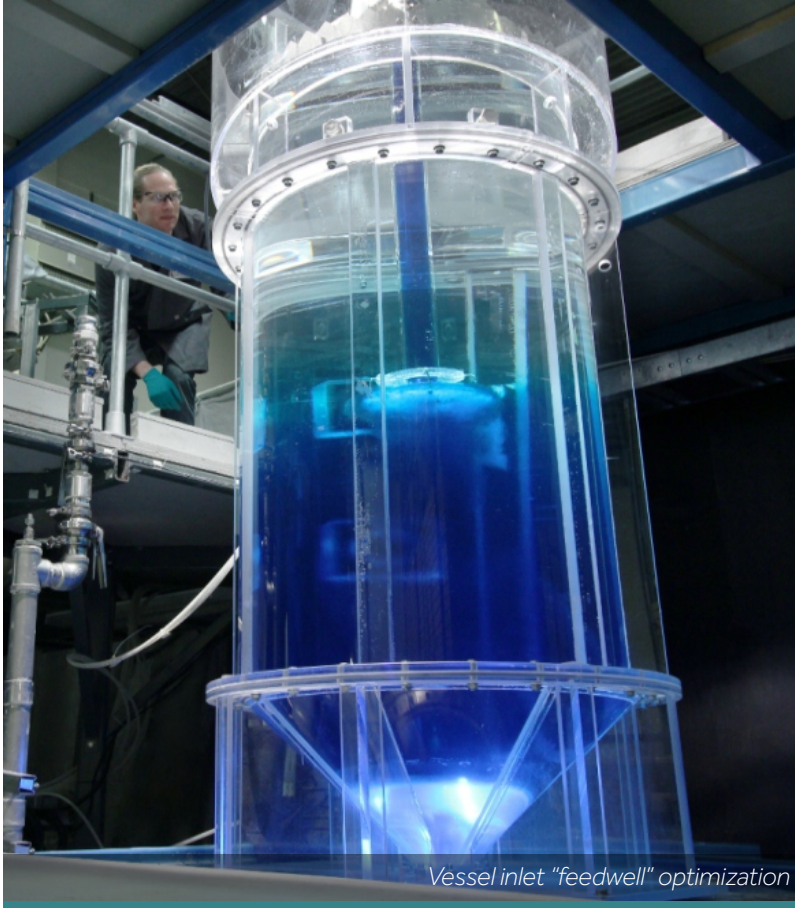
We have been designing and building custom research equipment and instrumentation for our on-site laboratories as well as for client facilities for over two decades. We specialize in turning real-world challenges into manageable lab-based apparatus.



X-ray density measurement on fluidized bed model

Facilities | Infrastructure

Our 65,000 ft² of laboratory space is fully-equipped with a variety of permanent infrastructure and instrumentation equipment that clients can utilize for their projects: complex liquid and gas piping loops, spray testing equipment and visualization tanks as well as a large array of pumps, blowers and compressors, flow meters, and other instruments that can be customized to a client's specific needs.



Vessel inlet "feedwell" optimization

Expertise

We have been involved with numerous Cleantech projects across North America and beyond, providing specialized services across the industry — assisting with design, troubleshooting upgrades, and debottlenecking — bringing advanced knowledge and expertise in key technical areas:

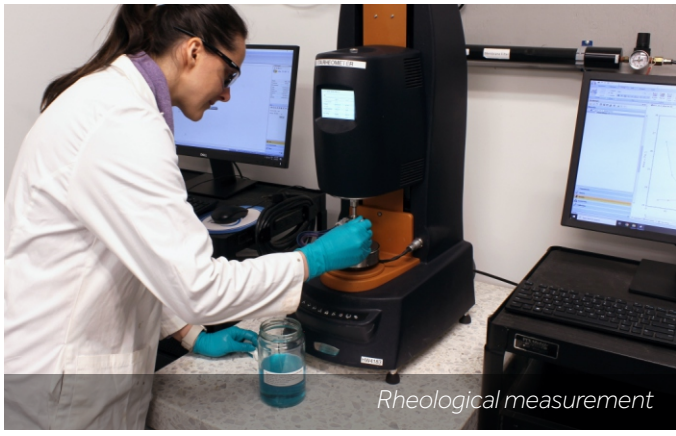
- Mixing
- Fluidization
- Geotechnical Science
- Tailings
- Rheology
- Non-Newtonian Flows
- Multiphase Flows
- Separation
- Nozzles, Jets and Sprays
- Gasification
- Data Science *(including* Big Data)
- Custom Control and DAQ software
- Advanced Instrumentation
- Artificial Intelligence & Machine Learning

Fluidized bed models in our laboratory

Industries - Cleantech & Related Sectors

We are devoted to addressing complex industrial and environmental challenges in Cleantech and beyond, across a broad spectrum of supporting industries and sectors. We work closely with each of our clients to define their critical challenges and key requirements to develop strategies that are designed to deliver game-changing results in a timely and cost-effective manner.

- *Cleantech*
- *Carbon Capture*
- *Water*
- *Oil & Gas*
- *Biotechnology*
- *Chemical*
- *Petrochemical*
- *Mining*
- *Environmental Science*
- *Oilsands*
- *Pharmaceutical*
- *Alternative Energy*
- *Government*
- *Building Sciences*
- *Pulp & Paper*



Rheological measurement

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TETRA TECH

As part of the Tetra Tech group of companies, Coanda's innovative, sustainable solutions help our clients address their water, environment, infrastructure, resource management, energy, and international development challenges. We are proud to be home to leading technical experts in every sector and to use that expertise throughout the project life cycle. Our commitment to safety is ingrained in our culture and at the forefront of every project. We combine the resources of a global, multibillion dollar company with local, client-focused delivery.

coanda.ca