

# Process Engineering Concept to Commercialization

The Xerox Research Centre of Canada excels at driving chemical processes from the concept stage to commercialization. We have expertise that you can use to move your ideas through any stage of the development cycle.



## What We Offer

Our multidisciplinary teams of engineers and scientists have been commercializing new material processes for over forty years. We offer you this expertise to help advance your material and process requirements to the next level.

## Bench Engineering

- Design of custom chemical materials, reactors, and processes
- Process intensification, conversion of batch to continuous processing
- Sourcing of raw materials and development of specifications
- Maximization of process/material sustainability
- Process optimization for reproducibility and repeatability
- Cost-down of new or existing materials or processes
- Small scale sample supply

## Pilot Plant

- Prototype manufacturing process design
- Fabrication of custom bench and pilot scale processing equipment
- Demonstration of process manufacturability at pilot scale
- Realistic determination of process yield, efficiency, and cycle time
- Large scale sample supply
- Materials supply

## Pre-Manufacturing and Technology Transfer

- Process economics and production cost estimates
- Large scale vendor identification
- Technology Transfer to vendor

# Process Engineering at the Xerox Research Centre of Canada



## Equipment

State-of-the-art process control systems

Wide range of chemical reactors

- Vessels sized from 1/8 gal to 500 gal (0.5 L to 1,900 L)
- Stainless steel, glass lined, plastic, PTFE
- Temperature capability from -25°C to 350°C
- Full vacuum to 700 psig (4.8 MPa)

Extensive processing equipment

- Fluid, bulk, and melt mixing: High-shear batch and in-line homogenizers, tumbling mixers, batch and continuous extruders, bulk blenders
- Powder dispersion and milling: Batch and in-line powder dispersers, microfluidizer, ball and attrition mills, media mills
- Size reduction: Mills, crushers, pneumatic jets and classifiers
- Product separation and purification: Centrifuges, continuous and batch filters, batch distillation, chromatography columns, sublimation, molecular distillation
- Drying: Vacuum, spray, fluidized bed, flash and freeze dryers



## Facilities

- 25 engineering labs (10,000 ft<sup>2</sup>) including 765 ft<sup>2</sup> Kilo Lab
- 25,000 ft<sup>2</sup> of pilot plant area; Class I, Div. 2, Class I Div. 1 and Class II Div. 1 capabilities
  - Flexible and modular for simple equipment rearrangement and process customization
- Bulk chemical and storage facility
- Model and machine shops for custom equipment fabrication
- Fully equipped analytical laboratories with access to all major material characterization techniques
- Environmental chambers for material conditioning and testing



## Our Commitment to You

We can help you realize the commercial capabilities of your material or process.

We offer the expertise of Chemical Engineers, Chemists, and Technologists along with support staff in the areas of mechanical fabrication, electrical, instrumentation, process control, and analytical services.

Our projects are administered using the Lean Six Sigma methodology, ensuring you receive the right data at the right time.

Bring us your challenges and we will help you uncover the solutions.

## Engage us!

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