

Research in Clean Technologies Engineering



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Photos courtesy of David Taylor

Clean technologies are defined as technologies developed by scientists and engineers that enable a more efficient use of natural resources and greatly reduce the particular technology's ecological impact. The concept of clean technologies embraces a broad range of products, services, and processes that provide superior performance at lower costs and significantly reduce or eliminate environmental ill-effects. Clean technologies span many industries, from alternative forms of energy generation to water purification to materials-efficient production techniques. At the University of Ottawa, expertise in environmental engineering, membrane separations, adsorption separations, biochemical processes, catalysis, microelectronics, bio-ethanol fuel, biodiesel fuel, thermodynamics and mechanical separations (filtration) form the backbone of our clean technologies research group.

The impact of clean technologies is wide-ranging: there are important market opportunities emerging in the multi-billion dollar agricultural, manufacturing and transportation sectors, as well as in the fundamental enabling areas of energy and water.

Experts

- * Dr. Marc A. Dubé
- * Dr. Kevin Kennedy
- * Dr. Kathlyn Kirkwood
- * Dr. Boguslaw Kruczek
- * Dr. Christopher Lan
- * Dr. Arturo Macchi
- * Dr. Takeshi Matsuura (Emeritus)
- * Dr. Poupak Mehrani
- * Dr. Sidney Omelon
- * Dr. David G. Taylor
- * Dr. Marten Ternan (Adjunct)
- * Dr. F. Handan Tezel
- * Dr. Jules Thibault
- * Dr. André Tremblay
- * Dr. Jason Zhang





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Partners

- * EnPross Inc.
- * CANMET-Ottawa, NRCan
- * Imperial Oil
- * Air Products and Chemicals, Inc.
- * Alcan Specialty Aluminas
- * IOGEN Corporation
- * AirScience Corp.

Some Current Projects

- * Low VOC coatings from emulsion polymerization
- * Environmentally-friendly solvents for polymerization
- * Polymerization from renewable, "green" monomers
- * Biodiesel fuel from waste frying oils
- * Development of a novel membrane reactor for biodiesel fuel production
- * Downstream processing in biodiesel production
- * Recovery of water from the atmosphere
- * Removal of CO₂ from gasifier flue gases
- * Synthesis of gas hydrates in a fluidized bed crystallizer
- * Development of petroleum hydroprocessing technologies
- * Production of bio-ethanol from agricultural waste as an additive to gasoline
- * Removal of CO₂ from flue gases
- * Recovery of CO₂ and CH₄ from landfill gas
- * Separation of N₂ and CO₂ from CH₄ for landfill gas and natural gas applications
- * Development of a novel process for biodiesel production from wastewater/flue gases using algal biotechnology
- * Development of soil bioremediation processes