Polymer and Process Engineering

The Department has more than 50% of its faculty members with expertise in polymer and process engineering. The research in this area is to put our department in the forefront in the area of modeling and simulation of chemical processes, polymer processing and polymer phase separation for modern applications in liquid crystal products. Polymer processing is one of our strengths, which is supported by state-of-the-art facilities for polymer injection and diffusion in polymers. Diffusion and transport of gas in polymers under critical conditions is also a main thrust of this group. Optimization of processes and application of optimal control to enhance the performance of chemical processes are carried out extensively. Research in this area will have great application in the environmentally-friendly extraction of oilsands. The department also has a new-hire in the area of polymer molecular modeling. This will help strengthen our research in polymers at the nano scale.

To support research activities in this area, researchers have access to a supercritical phase monitor, polymer injection, vapor extraction of oilsands and analytical facilities. Computing facilities are used in simulation and modeling of chemical processes.

The research performed in these areas is within the scope of the Ryerson's research themes of *Technical Innovation* and *Energy,* and *Sustainability and the Environment.*