



Programa de Pós-Graduação em
Ciéncia e Engenharia de Materiais

SEMINAR

Using Agricultural Byproducts for Composite Materials

Leonardo Simon, Department of Chemical Engineering, University of Waterloo, Canada,
lsimon@uwaterloo.ca

Abstract

Agricultural feedstock has a great potential to complement those provided by the forestry sector. This is especially relevant in the case of by-products from food production. Wheat straw is very abundant but its potential has not been fully explored in composites manufacturing. The potential is even greater if straw from other similar crops like rice, barley and oat are considered. This presentation will explore the research undertaken to explore the potential of wheat straw and to further expand its use in composite applications. Two approaches will be considered: straw pressboard based on thermoset resins and straw for injection molding with thermoplastics. Research from our group has previously led to the successful commercialization of straw in thermoplastic composites for automotive applications. This talk will discuss the treatment of straw as a feedstock for composites and its challenges. For straw pressboard prepared with thermoset polyester binders (Acrodur) the seminar will discuss processing parameters in compression molding leading, curing kinetics and treatment of straw. For straw used in polypropylene composites for injection molding the seminar will discuss the effect of particle size on physical properties.

Short Bio

Leonardo C. Simon is Professor in the Department of Chemical Engineering at the University of Waterloo in Canada. He teaches undergraduate and graduate courses in Materials Sciences and Engineering, Polymers, and Nanocomposites. His research areas include the synthesis, characterization and properties of polymer materials, nanocomposites and bioproducts. His research group uses nanotechnology, polymer science and engineering to develop new and enhanced plastics and composites for applications in automotive, packaging, consumer goods and advanced manufacturing. In 2018 he created Polynovus Consulting to meet the demand from industrial research collaborators requiring technical consulting and advanced training in the areas of materials and manufacturing, new technology and innovation.



FRIDAY 03/13/2020 – 9:30 h - ROOM 2103 - Campus Bagé