



***This service focuses on the development of various biomaterials containing polymers, biomass and renewable resources. Predominately our focus is on formulation, processing and development of novel, eco-friendly bioproducts using renewable, sustainable materials, within a circular economy for various applications and sectors.***

Core expertise involves polymer, biopolymer, bioresins, bioplastics, bio-based polymers and resins, recycled materials, composite, biocomposite, natural fibre composites, nanocomposite, bio-based nanocomposites, sustainable packaging, biomass and biomaterials sustainability, fibre processing and modifications, bio- and bio-based coating, sustainable corrosion protection, and additive manufacturing.

- We have extensive experience with polymers, celluloses, fibre, nanocellulose, lignin, pulp and paper, extraction, modification, incorporation, extrusion, filament production, blending, compounding, and electrospinning.
- We regularly perform bio-material and bio-product integration studies and associated economics

#### **Capacities include:**

- Twin screw and single screw extrusion units
- Extruding and mixing ceramic and powder metal compounds
- 3D printing filament production
- Sustainable packaging, polymer film process evaluation
- Producing long continuous fibre products
- Optimization process simulation with screw configurations to suit applications
- Compression molding from small size to 4x8 foot sized biomaterials
- Microfluidization and homogenization from micro- to nanometers
- Formulation, polymer compounding, extruding, pelletizing, and masterbatch production
- Electrospinning from solution, and melt spinning molten precursors and large complex molecules.
- Scale-up possibilities including: multiple needles, rotating roller electrospinning, and high speed electrospinning
- Conversion of biomass to value-added biomaterials
- Characterization of material's physical, chemical and mechanical properties

InnoTech Alberta, a subsidiary of Alberta Innovates, is a leading research and technology organization serving the needs of industry, entrepreneurs and the public sector. Our leading-edge expertise and industrial-scale research and demonstration facilities accelerate and de-risk technology development and deployment for our clients with a focus on industrial solutions and commercial application.

**Visit us at: [InnoTechAlberta.ca](http://InnoTechAlberta.ca)**

#### **FOR MORE INFORMATION, PLEASE CONTACT:**

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*Bio Industrial Services*