

BIOPROCESSING RESEARCH UNIT

CENTRE FOR AQUACULTURE AND SEAFOOD DEVELOPMENT

PILOT PLANT

The pilot plant facility is outfitted with various tank systems, separation, particle size reduction and drying equipment that are used to perform scale-up studies.

Key pieces of the facility are Atlantic Canada's only pilot-scale biodiesel production unit and an oil extraction line with a capacity of 1000 kg/h.

This facility is available to clients for:

- Pilot-scale process development (5-500 kg)
- Equipment test runs, manufacturer's demonstrations and industry workshops
- Procurement of marine sample material
- Contract research



PILOT-SCALE OIL EXTRACTION

- Contherm scraped-surface heat exchanger by Alfa-Laval with a capacity of 1000 kg/h
- 3-Phase decanter centrifuge by Alfa-Laval with a capacity of 1000 kg/h
- Westfalia separator (oil polishing) with a capacity of 20 L/h (Model SA1-01-175, Westfalia Separator AG)
- Progressive cavity pump (Allweiler)
- Steam kettles for enzymatic or heat oil extraction of up to 40 L raw material

PILOT-SCALE BIODIESEL PRODUCTION LINE

- Demonstration Biodiesel production line manufactured by BioLogic Inc. with a capacity of 220 L oil per batch and the following components
 - Pre-treatment tank
 - Transesterification tank
 - Methoxide preparation tank
 - Methanol Recovery System
 - Dry Wash Column
 - ColdClear Filtration system

PILOT-SCALE PROCESSING LINE

- The processing line can be used for a variety of applications, for example: Enzymatic hydrolysis, chitin extraction from shellfish, purification of shell waste or Surimi production. The line contains the following components but can be expanded by any of the equipment listed below.
 - 600 L fiberglass tank with water inlet, stirrer, pH/temperature monitoring, chemical dosing system for adding hazardous chemicals (e.g. acids)
 - 250 L steel tank
 - Washing system (rotary sieves with inside and outside water spray option)

CONCENTRATING/DRYING EQUIPMENT

- Thin film evaporator "Votator Turba-Film" by LCI Corporation with 9 sq ft heat transfer area
- Spray Dryer by APV
- Continuous screw press or dewatering drum

PARTICLE SIZE REDUCTION

- Hobart meat grinder, Model 4146 by the Hobart MFG Co. Ltd.
- Emulsifier "Mincemaster", Model 535-1000 by 3M Tool Company with a capacity of 1200 L/h
- Franklyn Hammermill

SEPARATION EQUIPMENT

- 3-Phase decanter centrifuge by Alfa-Laval with a capacity of 1000 kg/h
- Baader Separator (Deboner) by Nordischer Maschinenbau Rud. Baader with a capacity of 400 kg/h
- Beckman Centrifuge, Model J2-21M/E by Beckman Coulter
- Westfalia Centrifuge, Model SA1-01-175 by Westfalia with a capacity of 5-20 L/h

GENERAL EQUIPMENT

- Weigh Scales:
 - 16" platform scale; 300lb capacity (0.1Kg/lb)
 - 16" platform scale; 100lb capacity (0.01Kg/lb)
 - 30" platform scale; 200lb capacity (0.5Kg/lb)
- Steam Jacketed mixer kettles (100L, 20L, 40L)
- Vacpack Machine (The Hobart MFG Co. Ltd.)
- Chemical dosing pump
- Pumping System with Goulds pump, Model SSH (6SH2G4G0) G&L Pumps
- Oil Heater (Sterlco)
- Batch processing tanks
- Crab butchering table (single station)

GENERAL INFRASTRUCTURE

- Walk in cooler and freezer: 10 m2 each (under repair in summer 2017)
- Central Cleaning and Sanitation system
- Water supply: St. John's domestic water
- Power: US power (CAN and US 3-phase power)
- Offices and meeting room

Some equipment may be in temporary storage. Please contact us to confirm current operational status.