FERMENTATION AND PRODUCTION CAPABILITIES

MDG
MICROBIAL DISCOVERY GROUP

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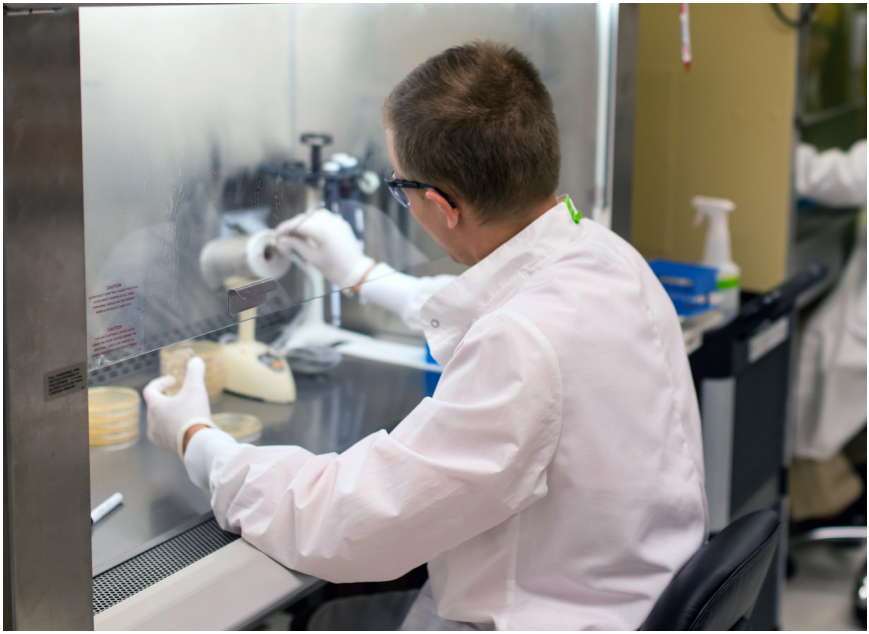


PROCESS DEVELOPMENT

- Media screening
- One (1) each of 20 L, 80 L, and 300 L pilot bioreactors
- Four (4) 5 L pilot bioreactors
- Four (4) 1.4 L pilot bioreactors
- Two (2) 0.75 L pilot bioreactors
- Pilot freeze dryer
- Pilot spray dryer

PROCESS FLOW

STRAIN GROWTH

We measure:

- Temperature
- Dissolved oxygen
- pH
- Agitation
- Pressure
- Exhaust gas analysis

CENTRIFUGATION

SPRAY DRYING **FREEZE DRYING**

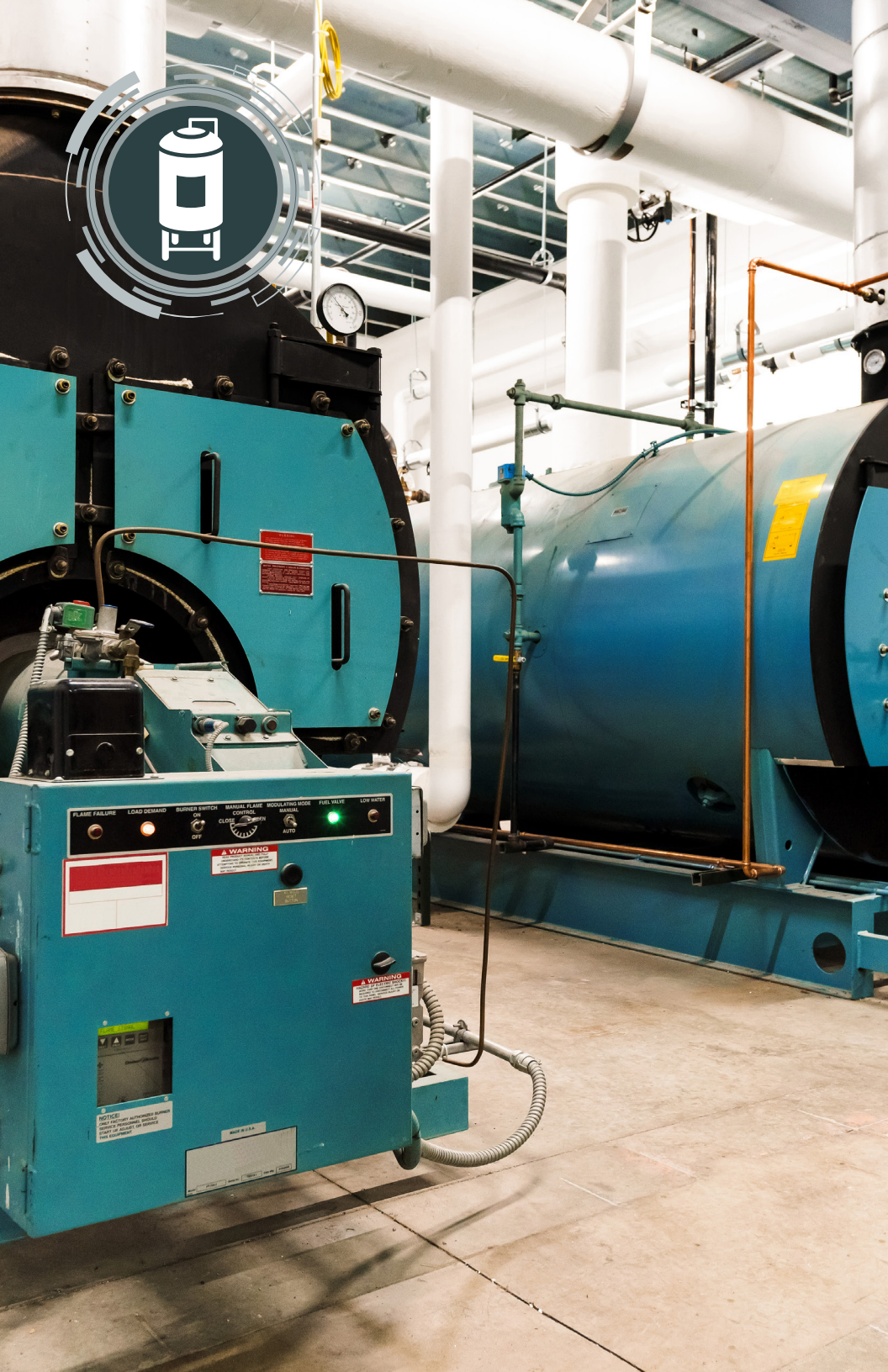
FINISHED GOODS

MANUFACTURING

- Five (5) 10,000 L bioreactors
- One (1) 5,000 L bioreactor
- Five (5) centrifuges
- Four (4) freeze dryers
- Spray dryer
- CIP systems
- Production capability
  - Batch - Seed tanks
- Multiple freezers

BLENDING AND PACKAGING

- Pin and conical mills
- 25 ft^3 ribbon blender
- 90 ft^3 rotary blender
- 70 ft^3 twin shaft paddle blender
- Various liquid blending tanks
- Vertical form, fill, seal packager


FLAME FAILURE
LOAD DEMAND
BURNER SWITCH
ON
OFF
MANUAL FLAME CONTROL
CLOSE
OPEN
MODULATING MODE
MANUAL
AUTO
FUEL VALVE
LOW WATER
WARNING
WARNING
NOTICE!

REDUNDANCY

- Boilers
- Water chillers
- Air compressors
- Sterilizers
- Backup generator
- Buildings

CERTIFICATIONS

- HACCP for production of food and feed cultures, and direct-fed microbial blending and packaging (Codex Alimentarius General Principles of Food Hygiene CXC-1-1969 [2023])
- Kosher (Orthodox Union)
- GMP* for the production of products related to:

- Biological waste
- Wastewater
- Aquaculture water
- Bioremediation treatment
- Plant treatment
- Commercial cleaning
- Industrial cleaning

*Codex Alimentarius General Principles of Food Hygiene, GMP requirements

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