FERMENTATION

Equipment overview:

(An)Aerobic fermenters:
Batch, fed-batch, continuous
All fermenters have: six-blade (hollow blade) Rushton impellers, high aeration, baffles and optionally foam breakers, the stainless steel reactors can be pressurized (max 1.4 barg)
• 4 x 250 mL glass fermenters with a central control system for parallel operation
• 4 x 1 L stainless steel [gas] fermenters, max 10 barg
• 4 x 2 L glass fermenters with a central control system for parallel operation
• 4 x 3,6 L glass fermenters with a central control system for parallel operation
• 4 x 7 L glass fermenters
• 2 x 10 L glass fermenters
• 10 x 150 L stainless steel fermenters
• 2 x 1500 L stainless steel fermenters
• 2 x 15000 L stainless steel fermenters

Anaerobic batch fermenters:
• 1 x 20 L [ATEX]
• 1 x 85 L [ATEX]
• 1 x 500 L [ATEX]
• 1 x 1000 L [ATEX]
• 1 x 5400 L [ATEX]

Gas fermenters, feed CO, CO₂, H₂, CH₄:
• 4 x 1 L [10 bar pressure]
• 1 x 10 L [ATEX, 5 bar pressure]
• Containerized mobile gas fermentation 10 + 100 L demo unit (under construction)

Auxiliary equipment:
• Analytical capabilities: HPLC, GC, GC-MS, fast biochemistry analyzer [YSI], [mass spec] off-gas analysis and data logging
• 2 x 12000 L feed tanks for the 1500 L and 15000 L fermenters
• Media preparation room
• Methanol [or ethanol] feeding to bench scale, 150 L, 1 x 1500 L and 1 x 15000 L fermenters
• In situ product recovery (ISPR)
• Nitrogen inertisation and blanketing
• Equipment for biomass separation: centrifuges, decanter, plate filters, filter presses, membrane filtration equipment (see product recovery and purification folder)
• A variety of downstream processing equipment to recover and purify the product of interest from the fermentation broth (see product recovery and purification folder)
• Production of 2G fermentable sugars (see biomass pretreatment folder)
• Cooling of the fermenters with cooling water from cooling tower and chiller
• Cell culture lab

What we offer:
• Scale-up and demonstration of fermentation processes
• Batch, fed-batch and continuous [with or without cell recycle] fermentations
• Experience with bacterial, yeast and fungal systems
• Food grade production (FSSC22000)
• Optional: methanol (ethanol) dosage on every scale
• Process development and optimization
• First series compound production & custom manufacturing at 15000 L scale
• Examples of products: industrial enzymes, fine and bulk chemicals, biofuels, biochemicals, bioplastics, biosurfactants, biosolvents, nutraceuticals, food ingredients, bioflavours, proteins...

Expertise:
BBEPP has more than 10 years of experience in optimizing, scaling and transferring your fermentation protocol from the lab to commercial production. We count on an entire team of well-trained and highly motivated fermentation experts both with academic and industrial backgrounds to take your process to the next level!