

Horizontal Pretreatment Reactor System

Versatile pretreatment system for a wide range of pretreatment chemistries



Photo by Dennis Schroeder, NREL/PIX 17684

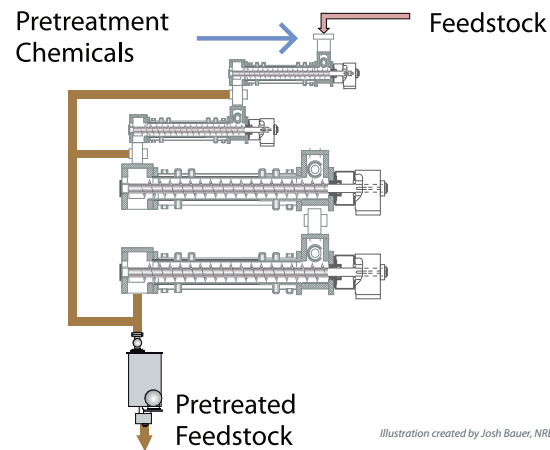


Illustration created by Josh Bauer, NREL

- Different pretreatment chemistry/residence time combinations are possible using these multiple horizontal-tube reactors
- Each tube is indirectly and directly steam heated to temperatures of 150° C to 210° C
- Residence time is varied by changing the speed of the auger that moves the biomass through each tube reactor

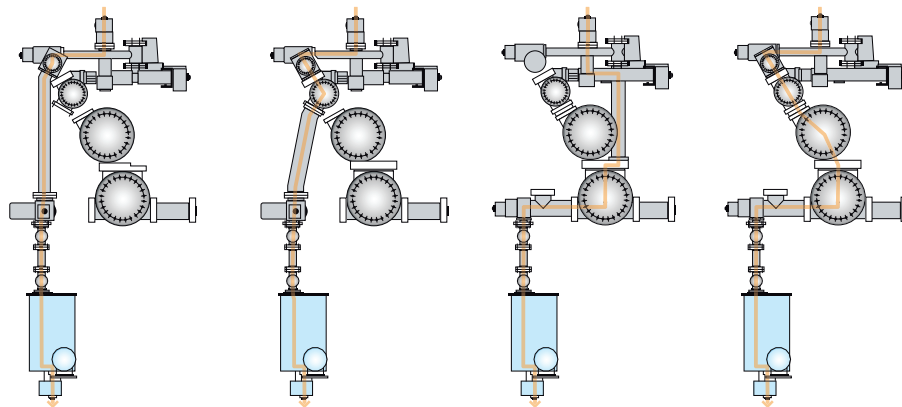


Illustration created by Josh Bauer, NREL

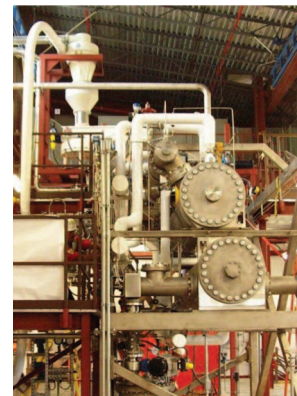


Photo by Sara Havig, NREL/PIX 18296

- Tubes are used individually or in combination to achieve different pretreatment residence times
- Smaller tubes made from Hastelloy, an acid-resistant material, are used with more corrosive chemicals and residence times from 3 to 20 minutes
- Larger tubes made from 316 stainless steel are used for residence times from 20 to 120 minutes