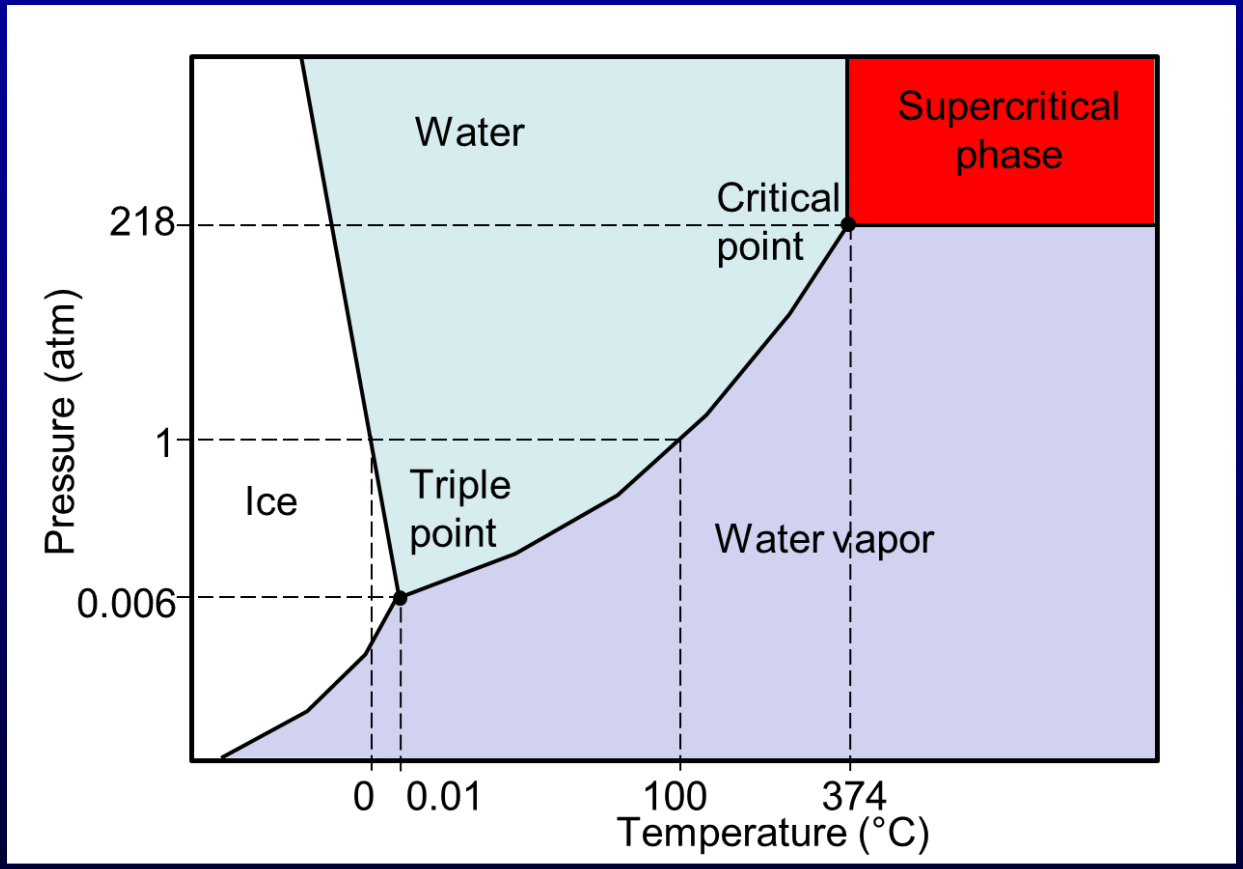
Omni Processor for Fecal Waste

Sanitation for the urban poor using supercritical water oxidation (SCWO). Prototype unit will treat the waste of ~1200 people

In supercritical water, organics are rapidly oxidized (in seconds) resulting in heat, and CO_2

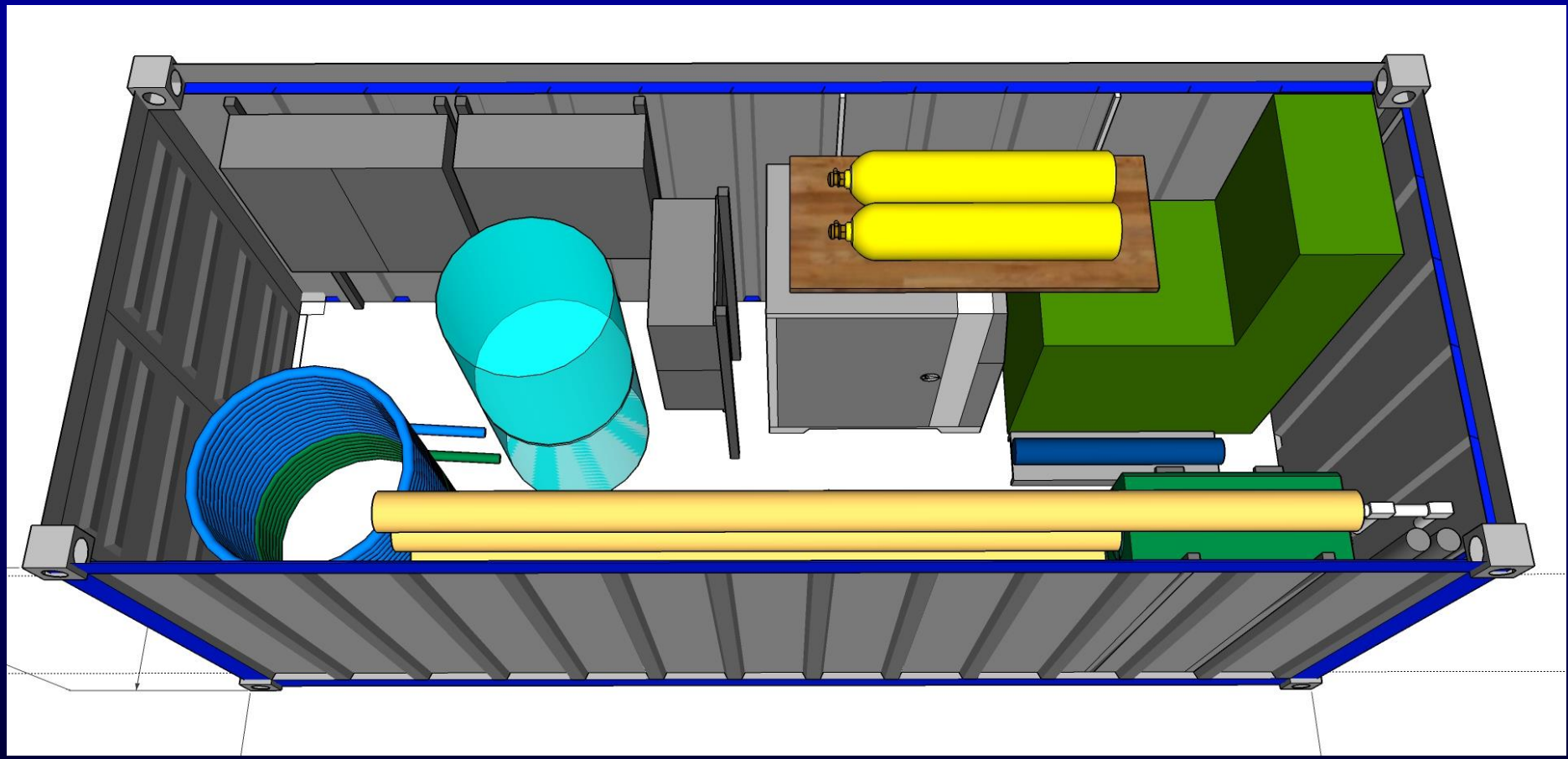
Influent waste

Treated effluent



This is a pressure cooker on steroids!

3D model of our Supercritical Water Oxidation Unit



Pilot Unit Construction at Duke

- Assume feed ~7-15% solids
- Reactor ID: 19 mm
- Reactor length: 4.2 m
- Heat exchanger length: 39 m

Pilot Unit Construction at Duke

Basic Kinetic Determinations

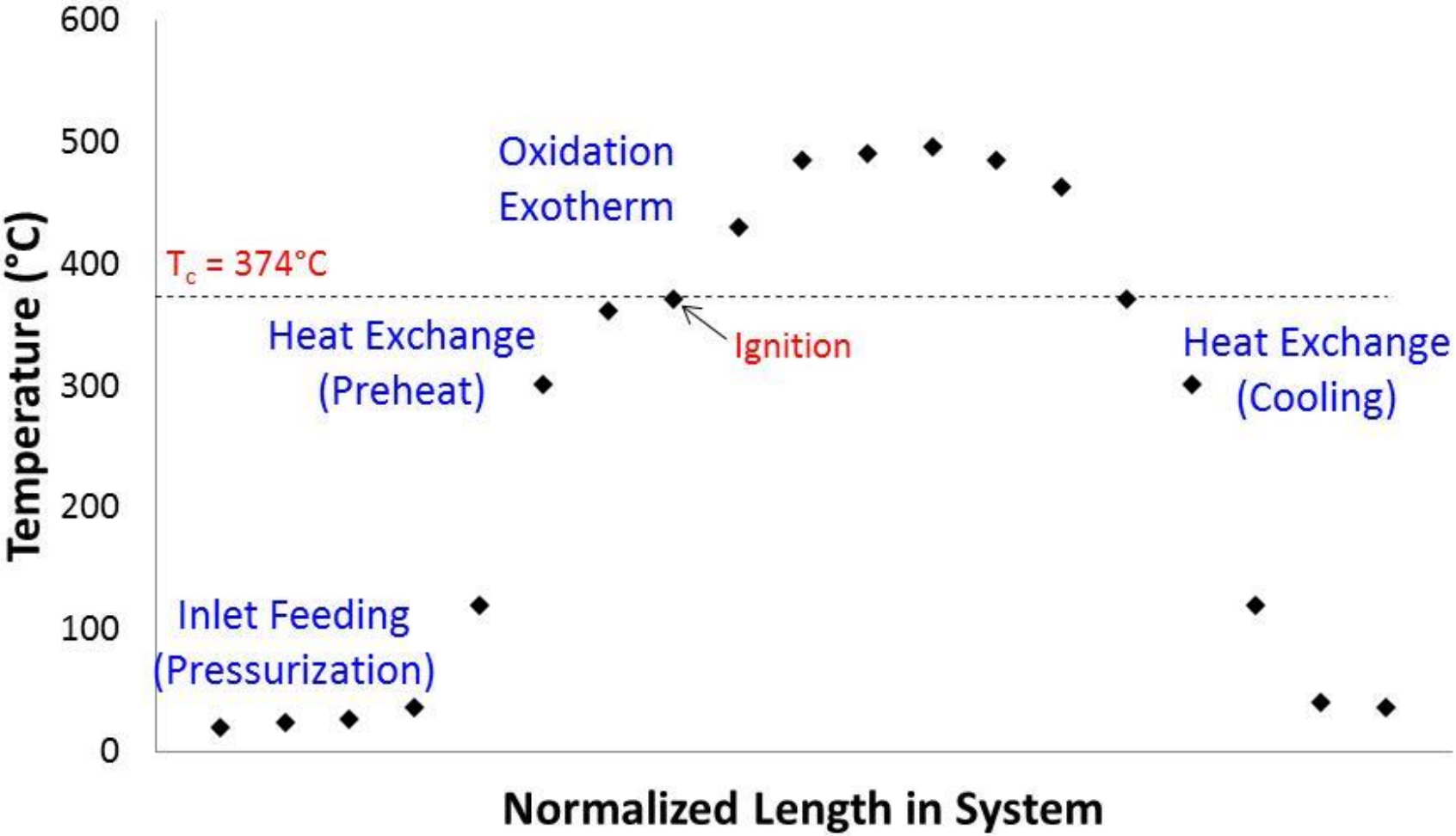
Feed
(5% solids)

18%
excess O_2

29%
excess O_2

48%
excess O_2

Test Run with 1.3% Isopropanol in our 20 ft Container Prototype



Future Plans

- Characterize/optimize performance with various fecal feedstock
- Identify O&M needs / Refine business model
- Evaluate the ability of SCWO to reach cost and treatment goals
- Revise/value engineer design (?)
- Field demonstration to follow (?) in 2016

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