



## Viscous Polymer Processing

### Problem:

Customer required a process to pre-concentrate their polymer to greater than 90% upstream of a vented extruder. Pre-concentrated product had a viscosity greater than 6 million cP at 92% concentration.

### LCI Solution:

LCI developed a complete solution to the problem and confirmed the concentration at our Test Center in Charlotte NC. The system design addressed several operational challenges:

**Challenge 1:** The dilute feed entrained polymer into the vapor stream

**Solution 1:** LCI demonstrated that a co-current configuration where vapor and concentrated polymer are discharged from the bottom of the evaporator not only solved the entrainment problem but improved operability of the system.

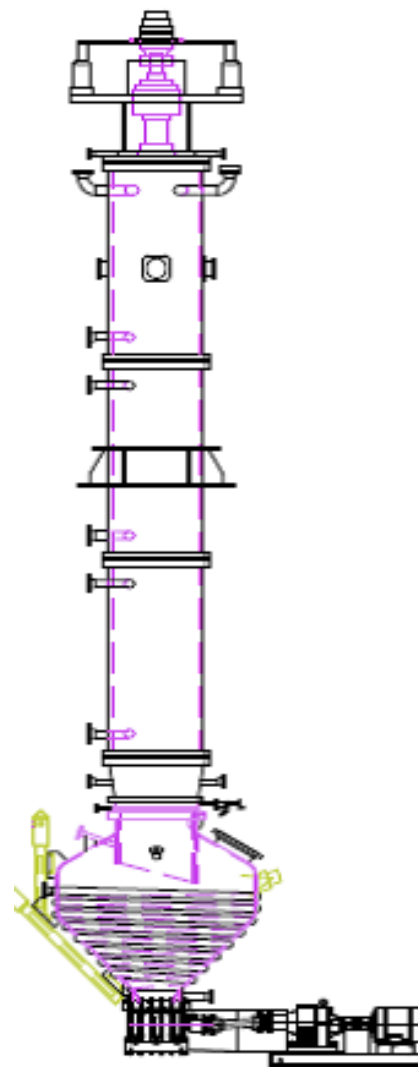
**Challenge 2:** Concentrated polymer is frothy making pumping from the LCI evaporator to the vented extruder difficult

**Solution 2:** LCI designed a special disengagement vessel directly mounted to the bottom of the evaporator. This vessel allowed the polymer to accumulate and residual solvent escape the froth. A special high viscosity pump with very low NPSHr rounded out the solution.

### Results and Comments:

The plant has been in successful operation since July 2013. The LCI High Viscosity Processor system allows the plant to run continuously without degradation and the need for cleaning.

In a follow up inspection two years after commissioning the insides of the equipment remained pristine with no polymer accumulation/degradation.



**HSG-2000 with specialty polymer discharge system**