Material Procurement:

* This is something that could be good to expand upon, focusing on the ability to recycle large sums of Vanderbilt plastic and directly supply the resulting PET filament to various Vanderbilt printing labs.
* We should talk to Dr. Withrow and Dr. Galloway about the amount of PET they use, and whether they may be interested in partnering with us.
* Instructor comments: An estimate of how much recycled PET filament will be used each month in the DF lab and other labs on campus will provide valuable information that can be used to size the extruder and determine the size of the PET slip stream that Recycling will provide. The group also needs to determine how the cost of the recycling PET filament will be recovered, potentially through sales to other labs at a reduced price.

Regrind preparation:

* To ensure that label glue is being sufficiently removed, we should try to find what the glue is made of, so we can find a chemical that would dissolve the glue but not the PET.
* We should give up on trying to find a way to use the tops and bottoms of the bottles, and instead just focus on optimizing and documenting our current method for grinding the middles.
* Instructor comments: Design of a PET regrind manufacturing process is an exciting new development that lies outside the original project scope. Two or three sophomore ChBE students are interested in assisting with the development of the regrind process. Participation of other students will ensure continuity so the PET recycling effort can continue in the next AY and also provide needed labor for preparing regrind. I sent some information from Agilyx on manufacture of PET regrind at the bench scale.

Modeling and simulation:

* Instead of using all data points from literature, try using only data points at the reference temperature to see if the fit will improve, since the m value is currently very off.
* The barrel optimized in NEXTRUCAD will need to have part of it removed (to keep the overall length the same as that of the screw) and the grooved barrel welded on instead.
* Instructor comments: Due to ongoing supply chain concerns, a barrel and extruder should be identified and ordered as soon as possible. Let’s discuss on Monday morning. It would be helpful to talk with a machine tool company to determine the possibility of ordering a custom screw and barrel: https://www.concortool.com/feed-screws-for-injection-molding-and-extrusion.html.