

ECONOMIC FEASIBILITY OF MIXED PLASTIC WASTE PYROLYSIS USING A TWIN REACTOR SYSTEM IN NORTHWEST ARKANSAS

This Thesis was completed by the Pyrolypigs team. I, Carol Rogers, am the Team Leader, and in this section I will discuss my contributions to the team.

I led and organized the team by coordinating meetings, making meeting notes, and allocating resources. I sent requisition orders for supplies and designated research to other team members. I completed all administrative work and created lab procedures. I coordinated most meetings with outside parties, such as the trip to the landfill and the trip to the Huntsville Pyrolysis unit.

In the research stage, my efforts were focused on the optimization of pyrolysis, catalysts, composition of plastic waste, and logistics of pyrolysis.

I participated in all lab work, including visiting the Huntsville Pyrolysis Unit, shredding plastic, preparing the plastic feed, and building and cleaning the reactor. I coordinated the lab work and designated the participating team members to contribute. I ran the tests on the produced oil including the simulated distillation curve using GC and density.

I did much of the calculations for the streams of the PFD, such as the mass balance and energy balance. I sized the heat exchanger using ASPEN software. I also performed many of the economic calculations such as the capital costs, revenue, equipment costs and sizing, and utility costs.

In writing the final report, I contributed to the economics sections, the bench scale unit section, the introduction, and the conclusion. I also edited the paper and built the PFD.

I created the poster with some editing from my team members, then the brochure that accompanied the poster. I presented the bench scale apparatus demonstration along with Renato Gonzalez.

I presented the sections on the lab work and the process description during the final presentation.