

## Homework 7

### Plastics in a Circular Economy

This week Kelly Williams Managing Director of Earth First Films held a discussion. I also continued the presentation about tire recycling.

- a) What are Cellophane and Glassine? What is the problem with wide use of Cellophane as a food packing product? How was the moisture vapor transmission (MVTR) of Cellophane improved? Consider manufacturing worker safety and the energy footprint of these materials compared to BOPP.
- b) What is the greater contribution to the adoption of polyolefins and other petrochemical based plastic film over biomass materials, a) “feedstock convenience” of hydrocarbons (petrochemical) versus biomass (cellulose) or b) “industry consolidation up and down the value chain”? (Explain your answer)
- c) Explain how flexible packaging has impacted “keeping-up with excess food production” and societies “addiction to convenience” according to Kelly Williams. Do you agree with this assessment?
- d) Explain how compostable packaging addresses the solid waste problem. What are the advantages and disadvantages of paper versus PLA for bioplastics. How can they be used together?
- e) How is recovered carbon black (RCB) produced? What co-products are made in this process? What percent of carbon black can be replaced using RCB? Comment on if this is a reasonable approach to tire recycling and how the EU regulations are driving this technology.