

Homework 12

Plastics in a Circular Economy

This week we covered biopolymers.

- a) Give examples of the four types of plastics 1) conventional, 2) bio-based, 3) bio-based and biodegradable, 4) biodegradable but not bio-based. Gove examples of compostable and industrially compostable plastics?
- b) What is the difference between home and industrial composting? Can PHB be composed by these processes? What about PLA? Why?
- c) What are renewable sources of methane? How can methane be used to produce plastics (list the reactions needed for this operation)?
- d) How is bio-oil produced? How can it be used to produce plastics? Are any of the plastics produced from bio-oil biodegradable?
- e) What is the difference between cellulose, starch, amylose, amylopectin, hemicellulose, glucose, and lignin? Which of these can serve as a feedstock for plastics and how?