Biopolymers Discussion day

Biopolymers CHEM-E2155

Michael Hummel

michael.hummel@aalto.fi

Aalto University School of Chemical Engineering

Schedule

Day	Subject of lecture	Discussion part
08 January	Introduction to the course	
15 January	Biopolymers overview	Reading 1
22 January	Biopolymers for packaging	Reading 2
29 January	Discussion day	Reading 3 & Assignment 1
05 February	Biodegradation 1	Reading 4
12 February	Biodegradation 2	Reading 5
26 February	Discussion day	Reading 6 & Assignment 2
04 March	Chitin, alginates and others	Reading 7
11 March	Proteins	Reading 8
18 March	Discussion day	Reading 9 & Assignment 3
25 March	TBD	Reading 10



Schedule

- Short joint discussion / 10 min
- Breakout rooms with each 4 students / 30 min
- Return to main session and leave a note in the chat / 5 min

(Break)

Discussion of reading assignment 6



Learning Outcomes

For the second assignment

You have identified material properties through problem-based learning



Proposed substitutes

- PLA (blends: wheat gluten, CNF, clay, ABS)
- PHAs, PHB (blends), PHBV
- PGA
- ABS + flax
- Chitin, chitosan

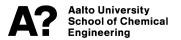
- Poly(limonene carbonate)
- bio-PP, r-PP
- bio-PET, r-PET
- PEF + ZnO₂
- bio-PA
- Nanocellulose + PE, wax
- TPU
- acrylonitrile styrene acrylate



Comments

Submissions generally of high quality

- Sources cited mostly correctly (sometimes date of webpage access or source of figure missing)
- Good summaries of your findings
- In some cases too little information.



Grading

Grade reduction if

- if assignment was fulfilled following the instructions: grade = 4
- higher grade for additional references, clear representation of findings, extra discussion, etc.
- reduction of grad if
 - no numeric values for oxygen transmission rate
 - late submission

Grading			
Each course assignment 20% of final grade	3 x 15% = 45%		
Padlet summaries of group Reading assignments	15%		
Peer-grading from group discussion	10%		
Final assignment	30%		

Discussion of Assignment 2

- 1) Present your slides to each other
- 2) Discuss how and where you have found your information
- 3) Compare your solution
 - Are they the same?
 - How do they differ?
 - Is there a best solution?



Reading 6 discussion

Title: Disposable Paper-based Food Packaging

Discussion items:

- Discuss production and consumption volumes of paper and board and packaging material, respectively.
- What are your key take-aways from the recycling chapter?
- How do you see paper/board-based food and beverage packaging?

Instructions:

Write your names and answers in e.g. PowerPoint. Save the text as image file (.jpg) and upload it to the Padlet page:

https://padlet.com/michaelhummel/CHEME2155 2024

