

CHEM-E2120 Fibers and Fiber Products

Exam Questions

101220

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30 points total, 6 points for each question.

1. Describe the lamellar and fibrillar structure of the pulp fiber cell wall (hint: what are the cell wall layers).
2. Describe what happens to low yield pulp fibers when these are dried and rewetted.
3. Name 5 important fiber properties and tell how to measure each.
4. What are the different types of pulp fines, how can these be measured? How do fines affect paper properties?
5. Why do pulp fibers swell and how does the swelling impact paper properties?

Bonus question (2 points)

A birch hardwood kraft pulp from a mill at pH 5 is adjusted with NaOH at pH 9. What happens to the refining energy needed to reach a specified pulp quality and why?