

Questions for Class 12
Mineral Matter 2 (Deposition)
Chemical Engineering 733

Reading:

[Red Book p. 323-343](#)

[Biomass Handbook p. 194-201](#)

1. Discuss some of the different physical mechanisms that result in deposition of mineral matter on furnace walls and boiler tubes. Also, please discuss the influence of particle size (in relative terms) on each mechanism.
2. What is the difference between slagging and fouling?
3. What is sootblowing, and why is it important?
4. How can deposition affect heat transfer in the furnace?
5. Why would the deposit on the upstream surface of a steam tube be different than the deposit on the downstream side?
6. Please describe some of the factors that affect deposit strength.
7. Summarize some of the main deposition problems when co-firing biomass with coal.
8. Suppose we knew everything about mineral matter deposition, including all of the chemistry, particle sizes, velocity patterns, and temperature distributions. What could we do with this information to make money?