Pre-lab Questions

Fluidized Bed

1. List 2 industrial applications that use fluidized beds.

2. How will you measure the bed voidage?

3. Briefly describe how you will measure the minimum fluidization velocity, listing each variable that needs to be measured while running the experiment.

4. How do you expect the minimum fluidization velocity to change with the particle size and density? Justify your answer.

5. Consider the plot of the pressure drop as a function of the fluid velocity:

![Graph of pressure drop vs fluid velocity](image)

Explain difference in the curves corresponding to the increasing and decreasing velocity. In particular, explain why the “hump” at the fluidizing point is present when the fluid velocity is increasing but not when it is decreasing.

6. Create a table including all the parameters you need to measure in the lab for one of the experimental conditions, keeping in mind that you need to create a graph of pressure vs. velocity for both increasing and decreasing velocity values. (This question is not for credit, but it will help you with the lab.)