cmg227

Christopher Guerrero

Spring 2011 Contributions

I began the Spring 2011 semester as a team member on the Chemical Dose Controller and Linear Flow Orifice Meter (CDC/LFOM) team. Alongside team members Matthew Higgins and Andrew Hart, I researched the upper-flow limits of a linear chemical dosing system. My goal for the semester was to generate a CDC design that is both mathematically based and laboratory tested. Initially we collected data for the chemical flow rate of our apparatus using one to three small diameters tubes ranging from one to three meters. However, we noted that our apparatus was dosing lower than our expected amount, leading us to believe that minor losses were influencing our system. Thus, we spent a large portion of the Spring 2011 semester investigating minor losses in our apparatus. While we still do not have a precise way of predicting these losses, we have found that tube length has had an effect on our minor loss coefficient and that larger barb fittings have been able to reduce these losses. In tandem, we have also developed a preliminary design for a reducer, which will be place a top the drop down tube and allow for the possibility of dosing up to 20 - 23 mL/s with nine small diameter tubes.

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