

1. Your prelab reading suggests that F_2 cannot be prepared by chemical process from fluoride. Justify this statement.

2. Describe the concept of an overvoltage and why it is important to consider for the production of $K_2S_2O_8$ from $KHSO_4$. Make sure to include the appropriate electrochemical equations.

3. The desired current density for this experiment is 1.0 amp cm^{-2} . Calculate the actual current needed to generate this value given the dimensions of the Pt wire stated in the procedure.

4. Using your current density of 1 amp cm^{-2} , and assuming an electrolysis time of 30 minutes and a 71% efficiency, calculate the expected yield of potassium persulfate.