

Question

1. Calculate the theoretical mass of acetaminophen, the theoretical yield, and the actual yield of acetaminophen. The mole ratio is 1:1 between 4-aminophenol and acetic anhydride in this reaction.
2. If your experimental yield of acetaminophen is greater than 100 percent, how could this occur?
3. Using melting source or the internet, find the accepted melting temperature test of your acetaminophen compare to the accepted value? Is the product pure acetaminophen?
4. Why was a pencil used to mark the chromatogram and not a ball pen or ink pen?
5. The eluent is to be below the 1.5-cm line on the TLC plate (*TLC silica gel on the aluminum plate*). Describe the expected observation if the eluent were above the 1.5-cm line.
6. What is the function of the mobile phase for developing a chromatogram? What is the mobile phase in this experiment? What is the function of the stationary phase for developing a chromatogram? What is the stationary phase in this experiment?
7. Explain the information than can be obtained from the R_f value and TLC results.

(4-aminophenol/crude acetaminophen/Authentic acetaminophen)

8. Below is a drawing of the reaction mechanism in this synthesis. Explain it(optional).

