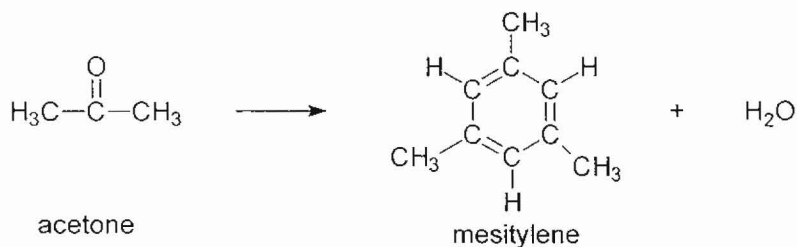
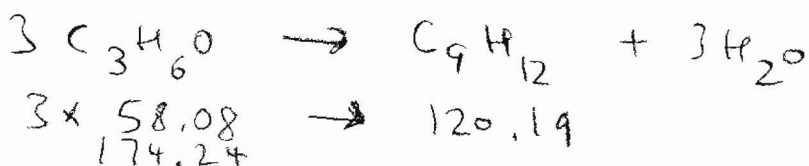


Acetone, when heated with a catalyst, generates mesitylene and water. When 10 grams of acetone were heated in the presence of a trace of sulfuric acid as a catalyst, 3.1 g of mesitylene were isolated. (Atomic weights: C = 12.011, H = 1.008, S = 32.066, O = 16.000)



1. Show a balanced reaction equation for this reaction. Use molecular formulas. (3 pts).



2. How many grams theoretical yield do you expect for mesitylene? Show your calculations! (3 pts).

$$\frac{10}{174.24} \times 120.19 = 6.90 \text{ g}$$

3. What % yield of theory was obtained? Based on which limiting reactant? Show your calculations! (3 pts).

$$\frac{3.1}{6.9} \times 100 = 44.9\% \text{ based on acetone}$$

4. Check all that apply! (6 pts)

| Substance | flammable | highly toxic when inhaled |
|-----------|-----------|---------------------------|
| mercury | | ✓ |
| ethanol | ✓ | |
| acetone | ✓ | |