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S A B (S) (sparks)

Brisa Lopez Estrada / Muna Nnadunie
↳ 7C ↳ (Beiberdorf)

Part I

① A $40\,g\,A \times \frac{1\,mol\,A}{60\,g\,A} \times \frac{5\,mol\,C}{3\,mol\,A} = 1.11\,mol\,C$

$35\,g\,B \times \frac{1\,mol\,B}{40\,g\,B} \times \frac{5\,mol\,C}{2\,mol\,B} = 2.1875\,mol\,C$

② $40\,g\,A \times \frac{1\,mol\,A}{60\,g\,A} \times \frac{1\,mol\,D}{3\,mol\,A} \times \frac{75\,g\,D}{1\,mol\,D} = 16.7\,g\,D$

③ $16.67\,g\,D \times \frac{1\,mol\,D}{75\,g\,D} \times \frac{2\,mol\,B}{1\,mol\,D} \times \frac{40\,g\,B}{1\,mol\,B} = 17.78\,g\,B$

$35 - 17.78 = 17.22\,g\,B$

Part II

① $Pb(NO_3)_2$ and KI

② Lead (II) nitrate and potassium nitrate

③ $Pb(NO_3)_{2(aq)} + 2KI_{(aq)} \rightarrow PbI_{2(s)} + 2KNO_{3(aq)}$

④ $9.22\,g\,PbI_2 \times \frac{1\,mol\,PbI_2}{461\,g} = 0.02\,mol\,PbI_2$

⑤

$0.22\,M\,Pb(NO_3)_2 = \frac{0.022\,mol\,Pb(NO_3)_2}{0.1\,L}$

$0.56\,M\,KI \times \frac{0.056\,mol}{0.1\,L} = 0.056\,mol\,KI$

$0.022\,mol\,Pb(NO_3)_2 \times \frac{1\,mol\,PbI_2}{1\,mol\,Pb(NO_3)_2} \times \frac{461\,g}{1\,mol\,PbI_2} = 10.142$

$0.056\,mol\,KI \times \frac{1\,mol\,PbI_2}{2\,mol\,KI} \times \frac{461\,g}{1\,mol} = 12.908$

$\frac{9.22}{10.142} \times 100 = \boxed{90.9\,\%}$

Part III

① $735\,torr \times \frac{1\,atm}{760\,torr} \times \frac{1.0135\,bar}{1\,atm} = \boxed{0.98\,bar}$

② Increase b/c the particles will now hit the 'walls' more

③ They have the same

④ The compressed sample