

Wkst 1.1: Average Reaction Rate Calculations



2- $? \text{ mol H}_2/\text{min} = (245 \text{ L/min}) (1 \text{ mol}/24.5 \text{ L}) = 10.0 \text{ mol/min}$

Al Rate = 6.66 mol/min

HNO_3 Rate = 20.0 mol/min

H_2 Rate = 10.0 mol/min

$\text{Al}(\text{NO}_3)_3$ Rate = 6.66 mol/min

3- $? \text{ mol NaOH/s} = (176 \text{ g} / 15 \text{ s}) (1 \text{ mol} / 40.0 \text{ g}) = 0.29 \text{ mol/s}$

NaOH Rate = 12 g/s

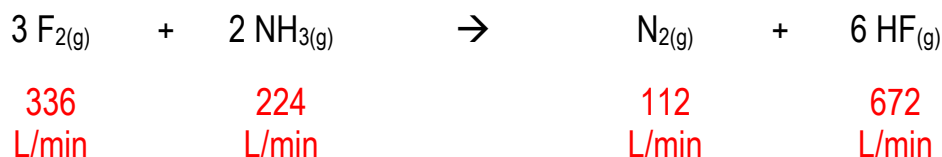
H_2SO_4 Rate = 15 g/s

Na_2SO_4 Rate = 21 g/s

H_2O Rate = 5.2 g/s

4- $? \text{ L N}_2/\text{min} = (22.4 \text{ L/mol}) (5.00 \text{ mol/min}) = 112 \text{ L N}_2/\text{min}$

Since all gases are at STP, Avogadro's hypothesis applies.



5- Watch for excess stoichiometry! Use only amounts of chemicals that have reacted!

Fe_2S_3 Rate = 2.50 g/s

HCl Rate = 2.63 g/s

FeCl_3 Rate = 3.89 g/s

H_2S Rate = 1.23 g/s