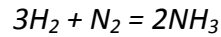# Answer on the question #48847, Chemistry, Physical Chemistry

Question:

the rate of disappearing of H2 in Habers process is 6mol lit-1 sec-1, what is the rate of disappearing of N2, appearing of NH3 and rate of reaction

Solution:

Let's write the reaction equation first:

$$3H_2 + N_2 = 2NH_3$$

Then, the rate of the reaction is:

$$r = -\frac{dc(H_2)}{3dt} = -\frac{dc(N_2)}{dt} = \frac{dc(NH_3)}{2dt}.$$

$$\frac{dc(H_2)}{dt} = -6\frac{mol}{L\,s},$$

$$hence: \frac{dc(N_2)}{dt} = -2\frac{mol}{L\,s}, \frac{dc(NH_3)}{dt} = 4\frac{mol}{L\,s}$$

$$reaction\ rate: r = 2\frac{mol}{L\,s}$$

Answer: the rate of disappearing of N_2 = $2\frac{mol}{L\,s}$, appearing of NH_3 = $4\frac{mol}{L\,s}$, rate of reaction = $2\frac{mol}{L\,s}$.