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Chem!stry

Mole Calculations for Reversible Reactions

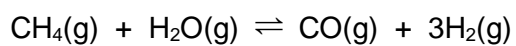
1. Nitrosyl chloride, NOCl , decomposes on heating according to the equation given below:



When 225 cm^3 of nitrosyl chloride was placed in a closed container at constant pressure, and heated to a constant temperature, it was found that nitrogen monoxide made up 20% of the equilibrium mixture.

What is the total volume of gases in the equilibrium mixture at the temperature of the reaction?

2. Hydrogen, $\text{H}_2(\text{g})$, can be obtained from methane, $\text{CH}_4(\text{g})$, by partial oxidation with steam, $\text{H}_2\text{O}(\text{g})$, as follows:



When 100 cm^3 of $\text{CH}_4(\text{g})$ was reacted with 100 cm^3 of $\text{H}_2\text{O}(\text{g})$ in a closed container at constant pressure, and heated to a constant temperature, it was found that carbon monoxide, $\text{CO}(\text{g})$, made up 20% of the equilibrium mixture.

Taking the decrease in volume of $\text{CH}_4(\text{g})$ to be $x \text{ cm}^3$, calculate the volume of $\text{CO}(\text{g})$ and $\text{H}_2(\text{g})$ in the equilibrium mixture.

	$\text{CH}_4(\text{g})$	$\text{H}_2\text{O}(\text{g})$	$\text{CO}(\text{g})$	$\text{H}_2(\text{g})$
Initial volume / cm^3	100	100	0	0
Final volume / cm^3	$100 - x$?	?	?

- Scan the QR code below to view the answers to this assignment.



http://www.chemist.sg/ammonia_equilibrium/equilibrium_mole_calc_ans.pdf