9. Exercise General Chemistry 25.01.2023

WS 2022/23

9.1

A tritium gas light source contains radioactive tritium ($^{3}_{1}H$, half-life t½ = 12.3 years) with an activity of 1GBq. Which mass of tritium is contained in the light source?

9.2

The constant K_p for the gas reaction A + B → C is $1 \cdot 10^{-6}$ bar^{-1}. In a vessel so much A and B are given that the partial pressures without reaction are 1 bar each. What will be the partial pressure of C in equilibrium? The use of approximations allows to carry out the calculation very easily.

9.3

How do the following equilibriums change under the specified conditions:

equilibrium	condition
$2SO_2 + O_2 \leftrightarrow 2SO_3$	pressure up
$2H_2 + O_2 \leftrightarrow 2H_2O$	Temp. up
$2NO + O_2 \leftrightarrow 2NO_2$	pressure down
$N_2 + 3H_2 \leftrightarrow 2NH_3$	addition of catalyst
liquid benzene ↔ solid benzene	pressure up

9.4

5.25 g of a gas occupy a volume of 2 dm^3 at 20 ° C and 2 bar. Calculate the molar mass of the gas.