Equilibrium	K$_c$	Units
$N_2 + 3H_2 \rightleftharpoons 2NH_3$	$K_c = \dfrac{[NH_3]^2}{[N_2][H_2]^3}$	$\dfrac{(mol\ dm^{-3})^2}{(mol\ dm^{-3})^4} = \dfrac{1}{(mol\ dm^{-3})^2} = \dfrac{1}{mol^2\ dm^{-6}} = \boldsymbol{mol^{-2}\ dm^6}$
$PCl_3 + Cl_2 \rightleftharpoons PCl_5$	$K_c = \dfrac{[PCl_5]}{[Cl_2][PCl_3]}$	$\dfrac{(mol\ dm^{-3})}{(mol\ dm^{-3})^2} = \dfrac{1}{(mol\ dm^{-3})} = \dfrac{1}{mol\ dm^{-3}} = \boldsymbol{mol^{-1}\ dm^3}$
$H_2 + I_2 \rightleftharpoons 2HI$	$K_c = \dfrac{[HI]^2}{[H_2][I_2]}$	$\dfrac{(mol\ dm^{-3})^2}{(mol\ dm^{-3})^2}$ **so no units**
$2SO_3 \rightleftharpoons 2SO_2 + O_2$	$K_c = \dfrac{[SO_2]^2[O_2]}{[SO_3]^2}$	$\dfrac{(mol\ dm^{-3})^3}{(mol\ dm^{-3})^2} = \boldsymbol{mol\ dm^{-3}}$
$CH_4 + H_2O \rightleftharpoons 3H_2 + CO$	$K_c = \dfrac{[H_2]^3[CO]}{[CH_4][H_2O]}$	$\dfrac{(mol\ dm^{-3})^4}{(mol\ dm^{-3})^2} = (mol\ dm^{-3})^2 = \boldsymbol{mol^2\ dm^{-6}}$
$2NO_2 \rightleftharpoons N_2O_4$	$K_c = \dfrac{[N_2O_4]}{[NO_2]^2}$	$\dfrac{(mol\ dm^{-3})}{(mol\ dm^{-3})^2} = \dfrac{1}{(mol\ dm^{-3})} = \dfrac{1}{mol\ dm^{-3}} = \boldsymbol{mol^{-1}\ dm^3}$