

Equilibrium Data for Hydrocarbons

Binary vapour-liquid equilibrium:

$$x_1 = \frac{1 - K_2}{K_1 - K_2} \qquad y_1 = K_1 x_1 = \frac{K_1(1 - K_2)}{K_1 - K_2}$$

Approximation for vapour pressure:

$$P_1^s = K_1 P.$$

Notation

x : molar fraction in the liquid phase

y : molar fraction in the vapour phase

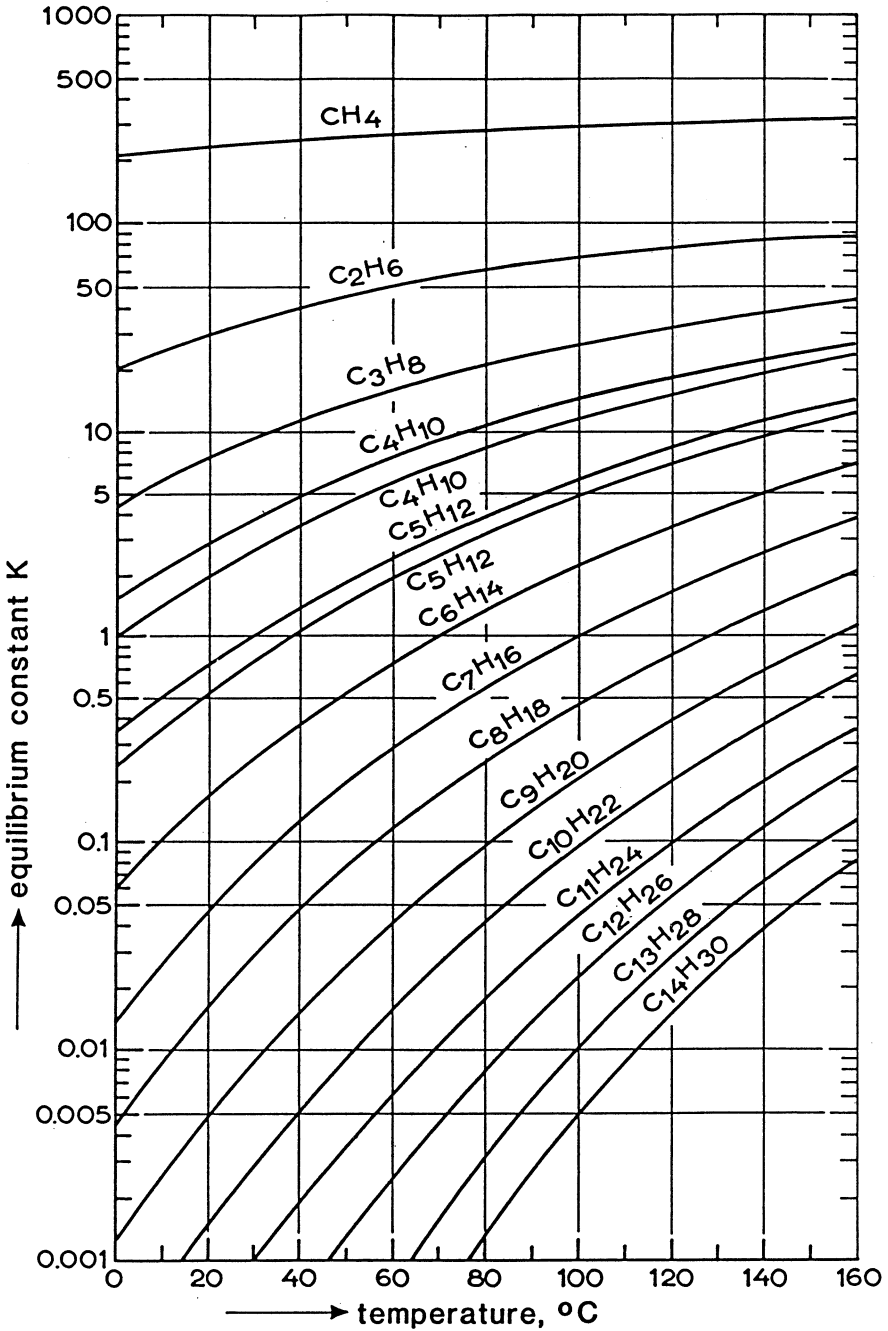
K : equilibrium constant

P : pressure

P^s : saturation pressure

Equilibrium constants of hydrocarbons at 1 bar and 0 – 160 °C

% mole in vapour = $K \times$ % mole in liquid



Equilibrium constants of hydrocarbons at 10 bar and 0 – 160 °C

 $\% \text{ mole in vapour} = K \times \% \text{ mole in liquid}$ 