5 Packed Bed Ceramic Absorber

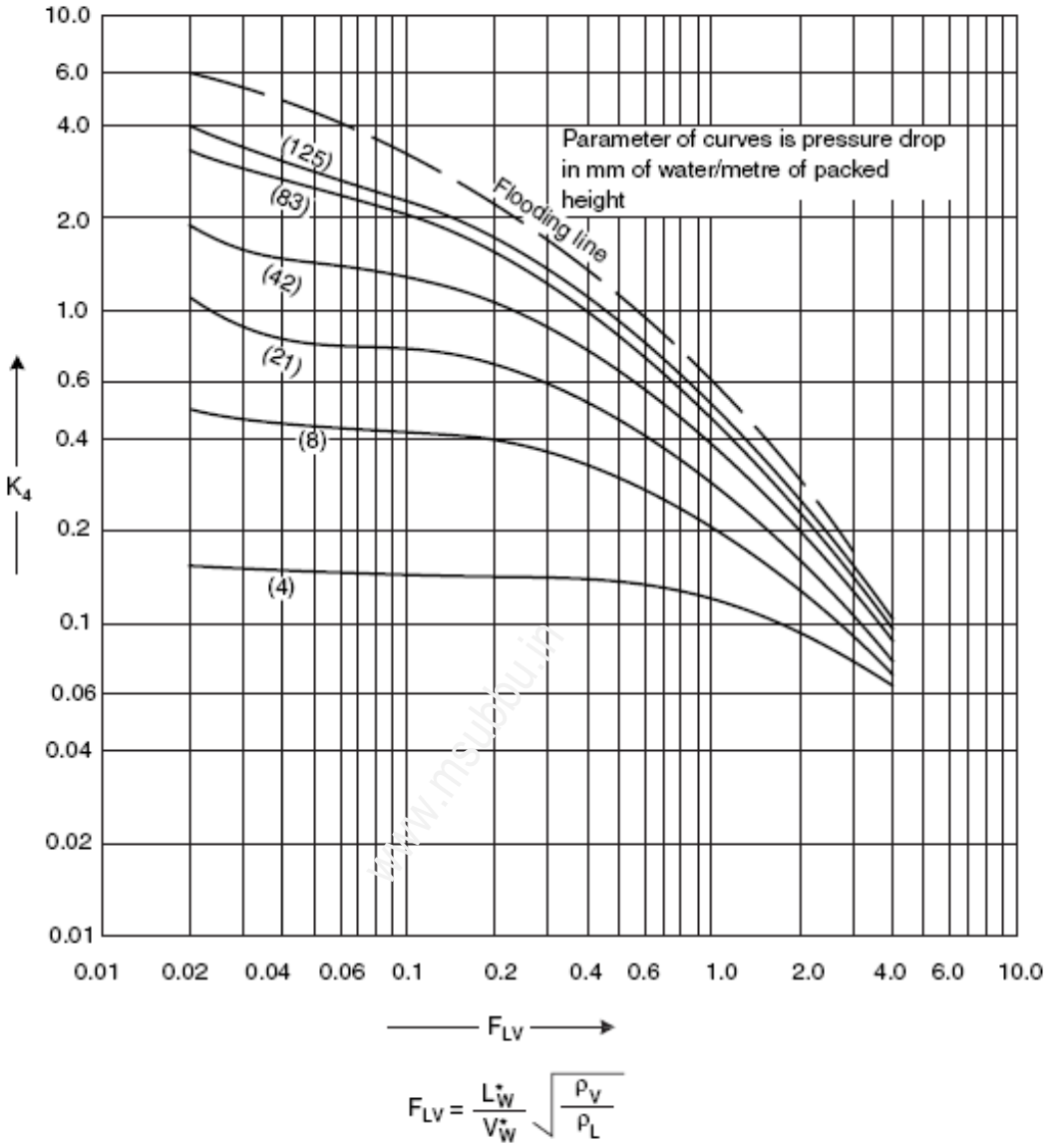

Figure 11.44. Generalised pressure drop correlation, adapted from a figure by the Norton Co. with permission

(Source: R.K.Sinnot, Chemical Engineering Design, 4th edition, Coulson & Richardson's Chemical Engineering Vol:6)

$$F_{\mathrm{LV}} = \frac{L_w^*}{V_w^*}\sqrt{\frac{\rho_v}{\rho_L}}$$

Where,

L_w^* = mass velocity of liquid, kg/(m^2.s)

V_w^* = mass velocity of gas, kg/(m^2.s)

ρ_v = density of gas, kg/m^3
ρ_L = density of liquid, kg/m^3

$$K_4 = \frac{13.1(V_w^*)^2 F_p \left(\frac{\mu_L}{\rho_L}\right)^{0.1}}{\rho_v(\rho_L - \rho_v)}$$

where V_w^* = gas mass flow-rate per unit column cross-sectional area, kg/m^{2}s
F_p = packing factor, characteristic of the size and type of packing,
μ_L = liquid viscosity, Ns/m^2
ρ_L, ρ_v = liquid and vapour densities, kg/m^3