

TQ080 – Fenômenos de Transporte I – CONVERSÃO DE UNIDADES

<p>1 m = 3,281 ft = 39,37 in                  1 ft = 12 in                  1 in = 2,54 cm</p>	<p>1 lbf = 4,448 222 N                  1 lbf = 32,174 lbf.ft/s<sup>2</sup>                  1 kgf = 9,807 N</p>
<p>1 lbm = 0,4535924 kg                  1 kg = 2,204622 lbm                  1 slug = 32,17 lbm = 14,594 kg</p>	<p>1 kW = 1,3410 hp = 238,9 cal/s = 56,88 Btu/min                  1 cv = 735,5 W                  1 hp = 745,7 W</p>
<p><math>T(^{\circ}\text{C}) = (T(^{\circ}\text{F}) - 32) / 1,8</math>  <math>T(\text{K}) = T(^{\circ}\text{C}) + 273,15</math>  <math>1 \Delta^{\circ}\text{C} = 1,8 \Delta^{\circ}\text{F}</math></p>	<p>1 P = 0,1 kg/m.s                  1 cP = 0,001 kg/m.s = 0,001 N.s/m<sup>2</sup>                  1 N.s/m<sup>2</sup> = 1 Pa.s                  1 cSt = 1 mm<sup>2</sup>/s</p>
<p>1 Btu = 1055 J                  1 kcal = 3,968 Btu                  1 cal = 4,1868 J</p>	<p><math>R = 8,314 \text{ J/mol.K} = 8,314 \text{ m}^3.\text{Pa/mol.K}</math>  <math>g = 9,8066 \text{ m/s}^2 = 32,174 \text{ ft/s}^2</math>  <math>g_c = 9,8066 \text{ kg.m/kgf.s}^2 = 32,174 \text{ lbf.ft/lbf.s}^2</math></p>
<p>1 lbf/ft<sup>3</sup> = 16,018 kg/m<sup>3</sup></p>	
<p>1 atm = 14,696 psi = 101,325 kPa = 101.325 Pa                  1 atm = 1,013 bar = 101.325Pa = 1,0333 kgf/cm<sup>2</sup>                  1 atm = 10,33 mca                  1 bar = 10<sup>5</sup> Pa                  1 psi = 6,8948 kPa = 6894,8 Pa                  1 kgf/cm<sup>2</sup> = 9,807×10<sup>4</sup> Pa = 98,07 kPa                  1 kgf/cm<sup>2</sup> = 14,223 lbf/in<sup>2</sup>                  1 lbf/in<sup>2</sup> = 6895 Pa                  1 mmHg = 133,32 Pa                  1 mm H<sub>2</sub>O = 9,8064 Pa</p>	<p>Dados para o ar nas CNTP (15°C, 101,325 kPa):  <math>M_{\text{ar}} = 28,98 \text{ g/mol} = 0,02898 \text{ kg/mol}</math>  <math>c_{p,\text{ar}} = 1004 \text{ J/kg.K}</math>  <math>c_{v,\text{ar}} = 717,4 \text{ J/kg.K}</math>  <math>\gamma_{\text{ar}} = 1,400 (-)</math>  <math>\rho_{\text{ar}} = 1,23 \text{ kg/m}^3</math>  <math>\mu_{\text{ar}} = 1,79 \times 10^{-5} \text{ N.s/m}^2 = 1,79 \times 10^{-5} \text{ kg/m.s}</math>  <math>c = 343 \text{ m/s} (20^{\circ}\text{C})</math></p>

$$psi = \frac{lbf}{in^2} \quad J = \frac{kg.m^2}{s^2} \quad Pa = \frac{N}{m^2} = \frac{kg}{m.s^2} \quad W = \frac{J}{s} \quad N = \frac{kg.m}{s^2} \quad dina = \frac{g.cm}{s^2}$$

$$slug = \frac{lbf.s^2}{ft}$$