

THERMAL APPLICATIONS NOTE

COMMON METRIC CONVERSIONS

A list of common metric conversions used in thermal analysis are listed below.

Temperature

$$T_{\text{C}} = (T_{\text{F}} - 32) / 1.8 = T_{\text{K}} - 273.15$$

Mass

$$1 \text{ kg} = 1000 \text{ g} = 2.20462 \text{ lb} = 35.27399 \text{ oz.}$$

Length

$$1 \text{ m} = 100 \text{ cm} = 1000 \text{ mm} = 10^6 \text{ microns} = 10^{10} \text{ angstroms} = 39.37 \text{ in}$$

Energy

$$\begin{aligned} 1 \text{ J} &= 1 \text{ Nm} &= 1 \text{ W/sec} &= 2.778 \times 10^{-7} \text{ kW hr} &= 10^7 \text{ dyne cm} \\ &= 6.2414 \times 10^{21} \text{ mV} &= 2.390 \times 10^{-4} \text{ kcal} &= 9.486 \times 10^{-4} \text{ BTU} &= 4.190 \text{ cal} \end{aligned}$$

Pressure

$$1 \text{ Pa (N/m}^2\text{)} = 7.5006 \times 10^{-3} \text{ torr} = 9.872 \times 10^{-6} \text{ atm} = 1.4504 \times 10^{-4} \text{ psi}$$

Force

$$1 \text{ N} = 1 \text{ kg m/s}^2 = 10^5 \text{ g cm/s}^2 = 10^5 \text{ dyne} = 101.9716 \text{ g} = 0.22481 \text{ lb}$$

Power

$$1 \text{ W} = 1 \text{ J/sec} = 2.3901 \times 10^{-4} \text{ kcal/sec} = 0.7376 \text{ ft lb/sec} = 9.486 \times 10^{-4} \text{ Btu/sec}$$

Prefixes

10^{12}	tera (T)	10^{-12}	pico (p)
10^9	giga (G)	10^{-9}	nano (n)
10^6	mega (M)	10^{-6}	micro (μ)
10^3	kilo (k)	10^{-3}	milli (m)

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