

APPENDIX 1

Relations between various characteristics of the neutron

E is the neutron energy in electron volts; T , the energy in degrees Kelvin; v , the velocity in meters per second; t , the time of flight in microseconds per meter; λ , the wavelength in Angstroms; k , the wave number in inverse Angstroms.

$$E = 8.617 \cdot 10^{-5} T = 5.223 \cdot 10^{-9} \cdot v^2 = 5.223 \cdot 10^3 t^{-2} = 0.08183 \lambda^{-2} = 2.073 \cdot 10^{-3} k^2;$$

$$T = 1.1605 \cdot 10^4 E = 6.061 \cdot 10^{-5} v^2 = 6.061 \cdot 10^7 t^{-2} = 949.6 \lambda^{-2} = 24.05 k^2;$$

$$v = 1.384 \cdot 10^4 \sqrt{E} = 128.4 \sqrt{T} = 10^6 t^{-1} = 3958 \lambda^{-1} = 629.9 k;$$

$$t = \frac{72.27}{\sqrt{E}} = \frac{7788}{\sqrt{T}} = 10^6 v^{-1} = 252.7 \lambda = 1.588 \cdot 10^3 k^{-1};$$

$$\lambda = \frac{0.2861}{\sqrt{E}} = \frac{30.82}{\sqrt{T}} = \frac{3958}{v} = 3.958 \cdot 10^{-3} t = \frac{6.283}{k};$$

$$k = 21.96 \sqrt{E} = 0.2039 \sqrt{T} = 1.587 \cdot 10^{-3} v = 1.587 \cdot 10^3 t^{-1} = 6.283 \lambda^{-1}.$$