Table 1.   Basic data for Ta used in this work.   Values quoted are for 25°C.   β is the volume coefficient of thermal expansion.

Atomic weight[9]   180.948

X-ray density, ρ[10] (gm cm^{-3})   16.626

Molar volume, V (cm^3)   10.883

Linear coefficient of thermal expansion[11]
$\quad\quad$ (10^{-6} deg^{-1})   6.5

Specific heat, C_p[12] (cal mole^{-1} deg^{-1})   6.08

Debye temperature, θ[2] (°K)   ~250

Gruneisen constant, γ 1.60

$\left.\dfrac{\partial \beta}{\partial T}\right)_P$[11] (10^{-9} deg^{-2})   ~3

$\left.\dfrac{\partial C_p}{\partial T}\right)_P$[12] (10^{-3} cal mole^{-1} deg^{-2})   2.2

$\left.\dfrac{\partial B_s}{\partial T}\right)_P$[2] (10^{-1} kbar deg^{-1})   − 2.0

Adiabatic elastic stiffnesses[2] (10^3 kbar):

C_{11} 2.610

$(C_{11} - C_{12})/2$ 0.518

C_{44} 0.818

B_s 1.919

Isothermal Bulk Modulus, B_T (10^3 kbar)   1.901

B_s/B_T −1 (10^{-3})   9.30