where

\[ \Gamma = \sum_{x,y} \frac{x}{x+y+z} \left( \frac{M_E}{M} \right)^2 \Gamma(E) \frac{y}{x+y+z} \left( \frac{M_E}{M} \right)^2 \Gamma(F) \ldots \] (3-2)

and

\[ \Gamma(Y) = \sum_{i} \left( \frac{1-M_{1i}}{M_{1i}} \right)^2 \] (3-3)

For the compound E_F_G_z...

\[ M = xM_E + yM_F + \ldots \]

\[ \frac{x + y + \ldots}{x+y+z} \ldots \] (3-4)

In these expressions, V is the molecular volume, \( \overline{M}_E \) is the isotope average mass of element E, x is the fraction of element E in the compound, and the other symbols have been defined in Table 2.

Use of the eight naturally occurring isotopes of cadmium and the six isotopes of selenium results in a value for \( \Gamma \) of 2.257 x 10^{-4} (79). This value gave theoretical values of \( A \) as 6.81 x 10^{-4} sec^2, 5.72 x 10^{-4} sec^2 and 2.32 x 10^{-4} sec^2 for parallel, perpendicular and average sound speeds.

The boundary scattering term was based on the Casimir length \( L \) calculated from the dimensions of the crystal,

\[ L = 1.12 (l_1 l_2)^{1/2} \] (3-5)

where \( l_1 \) and \( l_2 \) are the width and breadth of the crystal. Casimir lengths of 0.5715 cm, 0.5827 cm, 0.5413 cm, and 0.5822 cm were found for samples 1-4 respectively. The dispersion parameter 'W' was initially set equal to 3.

Values of \( B_1 \) and \( B_2 \) were estimated from an approximate expression for high temperature (49) derived from Eq. 36 of reference (57),

\[ R_1^2 + B_2 = \frac{k^2}{6\hbar \times \nu T^2} \], using the experimental data taken on CdSe samples.