

TABLE 7. ISOCHORES FOR SOLID ^3He

| $T = 0$ V | p | | | | | | | |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | |
| 12.5 | 1128.8 | 1128.8 | 1129.0 | 1129.7 | 1132.4 | 1138.7 | 1150.2 | 1167.6 |
| 13.0 | 931.7 | 931.7 | 931.9 | 932.9 | 936.1 | 943.4 | 956.5 | — |
| 13.5 | 772.9 | 773.0 | 773.3 | 774.6 | 778.8 | 787.8 | — | — |
| 14.0 | 644.1 | 644.2 | 644.6 | 646.3 | 651.7 | — | — | — |
| 14.5 | 538.9 | 539.0 | 539.4 | 541.8 | 548.7 | — | — | — |
| 15.0 | 453.7 | 453.8 | 454.4 | 457.4 | — | — | — | — |
| 15.5 | 383.7 | 383.8 | 384.6 | 388.5 | — | — | — | — |
| 16.0 | 326.4 | 326.5 | 327.4 | — | — | — | — | — |
| 16.5 | 278.3 | 278.4 | 279.7 | — | — | — | — | — |
| 17.0 | 238.0 | 238.1 | 239.7 | — | — | — | — | — |

 Units: T ($^{\circ}\text{K}$); V (cm^3/mole); p (Kg/cm^2).

 TABLE 8. COMPRESSIBILITY OF SOLID ^4He and ^3He AT 0°K

| V (cm^3/mole) | $10^5 \beta$ (cm^2/Kg) | |
|-----------------------------------|--|---------------|
| | ^4He | ^3He |
| 12.0 | 15.9 | — |
| 12.5 | 20.0 | 18.3 |
| 13.0 | 24.8 | 21.8 |
| 13.5 | 30.0 | 26.0 |
| 14.0 | 36.0 | 30.8 |
| 14.5 | 43.1 | 36.4 |
| 15.0 | 51.2 | 43.0 |
| 15.5 | 59.9 | 51.0 |
| 16.0 | 70.1 | 60.0 |
| 16.5 | — | 69.4 |
| 17.0 | — | 79.6 |

 TABLE 9. VOLUMETRIC THERMAL EXPANSION COEFFICIENT OF SOLID ^4He AND ^3He

| V | $T = 2$ | $10^3 \alpha$ (deg^{-1}) | | | | | | |
|-----|---------|-------------------------------------|---------------|------|------|------|------|--|
| | | 4 | 6 | 8 | 10 | 12 | 14 | |
| | | | ^4He | | | | | |
| 12 | 0.004 | 0.037 | 0.151 | 0.39 | 0.78 | 1.35 | 2.20 | |
| 13 | 0.009 | 0.101 | 0.40 | 0.98 | 2.02 | — | — | |
| 14 | 0.030 | 0.260 | 0.94 | 2.54 | — | — | — | |
| 15 | 0.070 | 0.60 | 2.32 | — | — | — | — | |
| 16 | 0.156 | 1.38 | — | — | — | — | — | |
| | | | ^3He | | | | | |
| 13 | 0.009 | 0.049 | 0.198 | 0.54 | 1.10 | 1.94 | — | |
| 14 | 0.018 | 0.127 | 0.49 | 1.27 | — | — | — | |
| 15 | 0.037 | 0.285 | 1.17 | — | — | — | — | |
| 16 | 0.082 | 0.63 | 2.67 | — | — | — | — | |
| 17 | 0.149 | 1.56 | — | — | — | — | — | |

 Units: T ($^{\circ}\text{K}$); V (cm^3/mole).

3.6.4. The internal energy at 0°K

In all subsequent discussion, the zero of energy will be taken as that of the infinitely separated atoms with zero kinetic energy (i.e. at 0°K). With this zero of energy the experimental value of the internal energy at 0°K and volume V can be obtained from the relation

$$U_0 = -L_0 - \int_{V_1}^{V_2} p dV + p_m \Delta V_m - \int_{V_3}^V p dV. \quad (11)$$