experimental data and is to be compared to the thermodynamic gamma (Γ_0) calculated from initial data using Eq. (29). The best fit gamma is the value obtained from Γ/V constant at $V = V_0$. The value for Γ_f is computer determined from a program written by John Skalyo, Jr. In the code, a Mie-Gruneisen form of the equation of state is assumed along with the approximation that Γ/V is constant as stated in Eq. (30). The mathematical development is similar to Section F of Chapter II. Essentially the program minimizes the energy on an isentrope and the enthalpy at zero compression with respect to Γ/V = constant. The range of Hugoniot starting pressures for the isentropes is chosen so that at zero compression the region of validity for the specific heat and volume expansion data is not exceeded. As can be seen from Table IX, the best fit gamma and the thermodynamic gamma compare poorly. This is due in part to the inadequate zero-pressure initial data which provides only a small pressure range over which the energies can be minimized. It is also believed that the Mie-Gruneisen model is not suitable for liquids. Instead of assuming Γ/V is constant it may be necessary to include volume dependant terms of the form

$$\Gamma/V = \Gamma_0/V_0 + F(V)$$

where Γ_0/V_0 is the thermodynamic value and $F(V)$ is some function of volume, possibly a series expansion. This hypothesis remains to be investigated.