NaCl. Finally, Bassett et al.[11] have found and reversed the B1 to B2 transition in NaCl at approximately 300 kb at room temperature. It would seem that whatever the remaining phenomena is at 20 kb, it does not involve the B1 to B2 transition, and that NaCl will remain in the B1 structure to high and useful pressures.

Perez-Albuerne and Drickamer[8] have compared NaCl by X-ray techniques with Ag and Mo. If the compression curves of Ag and Mo are known, this would determine a NaCl isotherm. Using older shock wave data[12], results were obtained which, because of the individual scatter in a data point, were used only to verify the calculation of an isotherm from a particular form of a Born-Mayer treatment. Their calculated isotherm is in agreement with the isotherm we report as well as that of Bridgman[6].

Direct shock-particle velocity data on NaCl could not be obtained because of the impracticality of fabricating the assemblies required for our shock-wave techniques. Hence we have employed the shock-wave impedance match technique using 2024 aluminum base plates as the standard. In this way, NaCl becomes a secondary standard, dependent on the Hugoniot and extended equation of state of 2024 aluminum. If the 2024 aluminum Hugoniot is accepted as known, a shock-locus for NaCl is obtained that is felt to be accurate to 1% in pressure. Subsequent modifications, if any, of the primary standard may be easily translated to a new Hugoniot locus for NaCl. As always, the largest uncertainty in an isothermal curve derived from shock-wave data is related to the choice of the

Grüneisen gamma used to reduce the Hugoniot to an isotherm. Several functions of volume have been used for $\gamma(V)$ and the resultant isotherms reported.

Experimental Methods and Results

The impedance matching technique used for obtaining the shock locus for NaCl has already been adequately described[12]. Single crystals in the (100), (110) and (111) orientations as well as some pressed powder samples were shock-loaded on base plates of 2024 aluminum, copper, and 921-T aluminum. The data taken on 921-T aluminum base plates has been discarded for reasons described elsewhere[13]. In this report only those data whose final shocked state is believed to remain in the B1 structure are reported. The majority of the data were taken on 2024 aluminum with a few points taken on copper base plates as a consistency check. The data necessary for impedance calculations for the primary standards are:

2024 aluminum: $\rho_0 = 2.785$ g/cm$^3$, $u_s = 5.328 + 1.338\, u_p$ km/sec

$(\partial E/\partial P)_V = 0.19$ cm$^3$/gm

Copper: $\rho_0 = 8.93$ g/cm$^3$, $u_s = 3.940 + 1.489\, u_p$ km/sec

$(\partial E/\partial P)_V = 0.057$ cm$^3$/gm.

A constant $(\partial E/\partial P)_V$ was used to generate the release isentropes necessary for the impedance match calculations. The data are reported in Table I and illustrated in Fig. 1. In addition to the tabulated data, data points showing the onset of the B1 to B2 (presumably) phase transition are included in the figure for both