

Table II. Thermodynamic Parameters for NaCl

Quantity	Value	Reference
M	58.443 g/mole	17
N	6.02252×10^{23}	
a_0	5.6393 Å at 22 °C	19
$\beta = \frac{1}{V} \left(\frac{\partial V}{\partial T} \right)_P$	$1.195 \times 10^{-4} / ^\circ\text{K}$ at 20 °C	19
B_s	0.2505 Mb at 22 °C	14
C_p	12.05 cal/mole - °K at 20 °C	20, 21

Derived Values at 293 °K

$$\rho = 2.1645 \text{ g/cm}^3$$

$$B_s = 0.2507 \text{ Mb}$$

$$C_p = 0.8627 \times 10^6 \text{ ergs/gm-}^\circ\text{K}$$

$$c_0 = 3.403 \times 10^5 \text{ cm/sec}$$

$$\gamma = \beta c_0^2 / C_p = 1.6044$$

$$\gamma\beta T = 0.0562$$

$$C_V = 0.8168 \times 10^6 \text{ ergs/gm-}^\circ\text{K}$$

$$B_T = 0.2374 \text{ Mb}$$

$$K_T = 4.213 \text{ Mb}^{-1}$$

$$\left(\frac{\partial P}{\partial T} \right)_V = 0.0284 \text{ Kb/}^\circ\text{K}$$

$$\left(\frac{\partial E}{\partial P} \right)_V = 0.2880 \text{ cm}^3$$

$$3nk = 0.8535 \times 10^7 \text{ ergs/gm-}^\circ\text{K}$$

$$C_V / 3nk = 0.9570$$

$$\theta_D / T = 0.9420$$

$$\theta_D = 276 \text{ }^\circ\text{K}$$

Table III. The $(\partial E/\partial P)_V$ Constant, 293 °K Na Cl Isotherm and
its Antecedent Hugoniot

P Kb	Hugoniot		Isotherm		
	ρ_H g/cm ³	T_H °K	ρ g/cm ³	V/V ₀	a/a ₀
0	2.1645	293	2.1645	1.0000	1.0000
5	2.206	302	2.208	.9803	.9934
10	2.245	311	2.248	.9629	.9875
15	2.281	319	2.286	.9469	.9820
20	2.314	328	2.321	.9326	.9770
25	2.347	336	2.355	.9191	.9723
30	2.377	345	2.386	.9072	.9680
35	2.406	355	2.417	.8955	.9639
40	2.434	365	2.446	.8849	.9601
45	2.461	375	2.473	.8753	.9566
50	2.486	386	2.500	.8658	.9531
55	2.511	398	2.526	.8569	.9498
60	2.535	410	2.552	.8482	.9466
65	2.558	423	2.576	.8403	.9436
70	2.581	436	2.600	.8325	.9407
75	2.602	450	2.623	.8252	.9380
80	2.624	464	2.645	.8183	.9354
85	2.644	479	2.667	.8116	.9328
90	2.664	494	2.689	.8049	.9302
95	2.684	510	2.710	.7987	.9278
100	2.703	527	2.731	.7926	.9254
105	2.722	544	2.751	.7868	.9232
110	2.740	562	2.771	.7811	.9210
115	2.758	580	2.790	.7758	.9189