

Table 2. Transition pressure (P_{tr} , kb) for the Fm3m ⇌ Pm3m phase change in the potassium and rubidium halides at 25°C

Salt	Bridgman 1945[25]	Daniels, <i>et al.</i> 1966[31]	Kennedy and LaMori, 1962[18]	Knof and Maisch, 1963[26]	Larson, 1965[29]	Piermarini and Weir, 1962[4]	Pistorius, 1964[11, 12]	Pistorius and Snyman, 1964[13]	This work	Average Value
KF						35		14.6 ± 1.3		None observed
KCl	19.7		18.28 ± 0.21		20.0		19.27 ± 0.08		19.55 ± 0.13	19.4 ± 0.3
KBr	18.0		17.88 ± 0.06		18.5		17.43 ± 0.07		17.99 ± 0.28	18.0 ± 0.2
KI	17.8		17.48 ± 0.24				17.34 ± 0.05		18.27 ± 0.19	17.7 ± 0.3
RbF				33		12		6.1	34.47 ± 0.38	33.8 ± 0.8
RbCl	4.90						5.28		5.68 ± 0.14	5.32 ± 0.24
RbBr	4.50						4.20 ± 0.2		4.92 ± 0.06	4.57 ± 0.35
RbI	3.96	3.54					3.59 ± 0.16		3.68 ± 0.05	3.69 ± 0.11

Table 3. Transition volume ($-\Delta V_{tr}$, cm³/mole) for the Fm3m → Pm3m phase change in the potassium and rubidium halides at 25°C

Salt	Adams and Davis, 1962[8]	Bridgman, 1945[25]	Genshaft <i>et al.</i> , 1967[30]	Jacobs, 1938[6]	Jamison, 1957[7]	Nagasaki and Minomura, 1964[9]	Pistorius and Snyman, 1964[13]	Weir and Piermarini, 1964[5]	This work	Average value
KF							1.0	2.49		None Obs.
KCl		4.20				3.85		6.85	4.11 ± 0.10	4.05 ± 0.17
KBr		4.55						8.35	4.17 ± 0.11	4.36 ± 0.19
KI		4.50			4.50			11.8	4.41 ± 0.15	4.47 ± 0.13
RbF								3.70	1.83 ± 0.29	
RbCl	6.55	6.00	6.30					5.76	6.95 ± 0.11	6.30 ± 0.35
RbBr		6.55						6.60	7.43 ± 0.18	6.86 ± 0.39
RbI	9.65	7.50		7.9				8.26	8.10 ± 0.10	8.28 ± 0.31

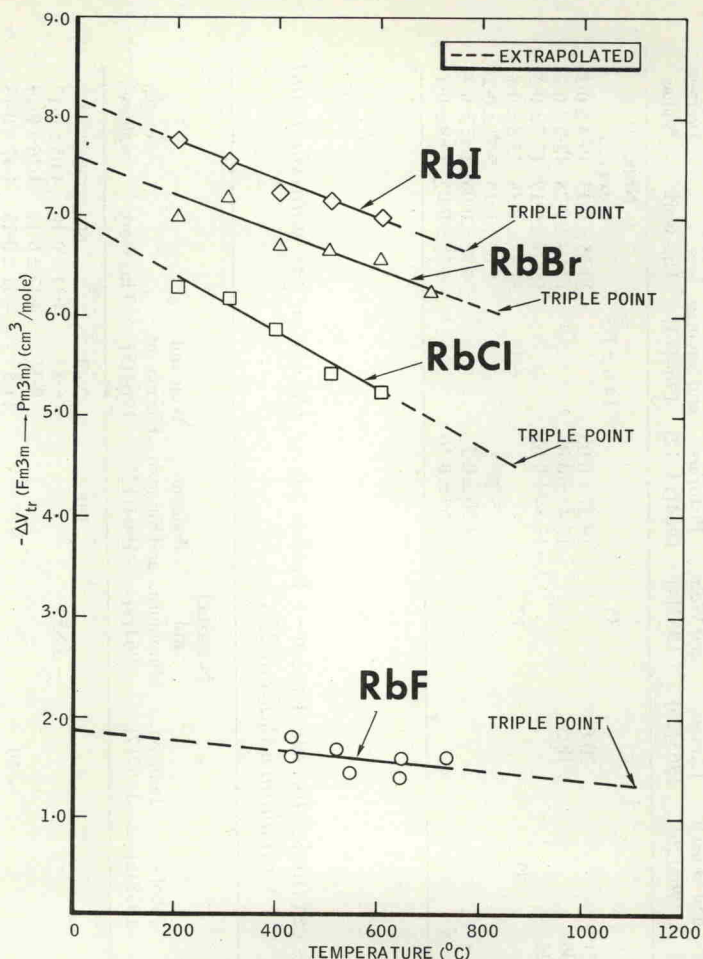


Fig. 4. $\Delta V(\text{Fm}3\text{m} \rightarrow \text{Pm}3\text{m})$ vs. T for the rubidium halides.

perature data by use of equation (2). The pressure-temperature coordinates of the $\text{Fm}3\text{m} \rightleftharpoons \text{liquid} \rightleftharpoons \text{Pm}3\text{m}$ triple point for these salts were determined from the intersection of the melting curves of the $\text{Fm}3\text{m}$ and $\text{Pm}3\text{m}$ phases at the $\text{Fm}3\text{m} \rightleftharpoons \text{Pm}3\text{m}$ phase boundary. The melting curves of the $\text{Fm}3\text{m}$ and $\text{Pm}3\text{m}$ phases were drawn through the data points of Clark[22] and of Pistorius [23] in order that the intersection of these two curves would fall on the $\text{Fm}3\text{m} \rightleftharpoons \text{Pm}3\text{m}$ phase boundary obtained in this work. Triple point coordinates obtained for the salts KCl , KBr and KI are shown in Fig. 1; coordinates for the rubidium halides are shown in Fig. 2.

These triple point P - T coordinates are compared with the P - T coordinates given by Clark[22] and by Pistorius[23] in Table 4.

Potassium halides

Potassium fluoride was examined at pressures up to 45 kb at approx. 100° intervals from room temperature up to 800°C. However, we fail to find the phase transition reported by Weir and Piermarini[5] and by Pistorius and Snyman[13]. Pistorius *et al.* found the volume change of this transition to be small, i.e. 0.5 per cent. The sensitivity of the method used here is more than adequate to detect a phase transition with such a small