

position of the *A* band at 1 atm. in these mixed crystals is tabulated in Table 2. It can be seen that in the mixed crystals, the iodide ion is a much stronger perturbing force than the bromide ion, since the mixed crystal spectra are displaced towards KI:Tl. This is to be expected, since the iodide ion is both larger and more polarizable than the bromide ion.

The effect of pressure on these mixed crystals is shown in Fig. 3. A gradual change in the magnitude of the transition discontinuity occurs, proceeding from KI:Tl to KBr:Tl in a regular manner.

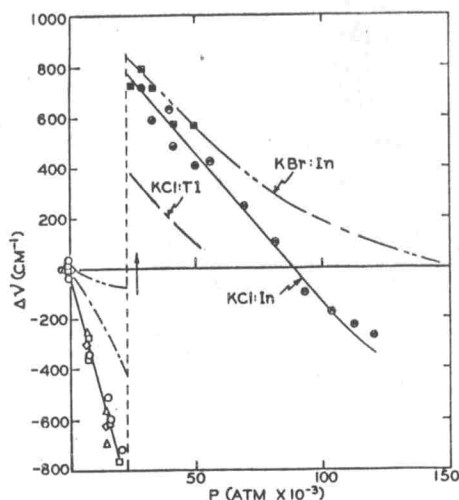


FIG. 4. "A" peak frequency vs. pressure—KCl:In; KBr:In (KCl:Tl shown for comparison); data points are for KCl:In.

The effect of pressure on the In^+ ion in alkali halide lattices

Studies have also been made of the effect of pressure on the spectra of the *A* band in potassium chloride and potassium bromide activated by indium (see Fig. 4). The shifts are similar to those for thallium, but greater in magnitude. This difference can possibly be attributed to the difference in ground state force constant of the two impurity ions.

The effect of pressure on the lead ion in alkali halide lattices

The effect of pressure on the spectra of the *A* band in twelve alkali halides activated with lead

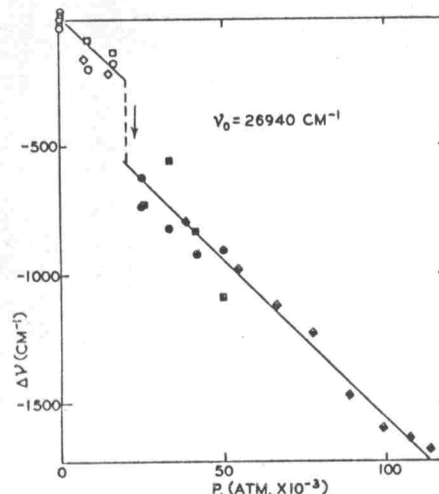


FIG. 5. "A" peak frequency vs. pressure—KBr:Bi.

has been measured to as high as 170,000 atm. The systems studied and the pressure range for each are given in Table 2. The data are shown in Figs. 6-8. In general, the frequency of the band initially shifts to higher energy, except at phase transitions. Then, at very high pressures the shift reverses and moves to lower energy. It is believed that the tendency to shift to higher energy may be connected

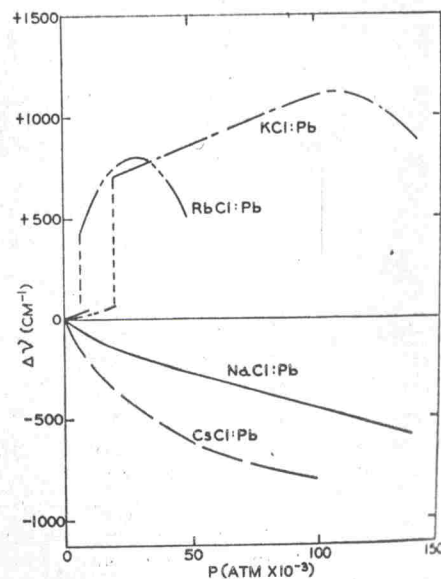


FIG. 6. "A" peak frequency vs. pressure—four alkali chlorides activated by Pb^{2+} .

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