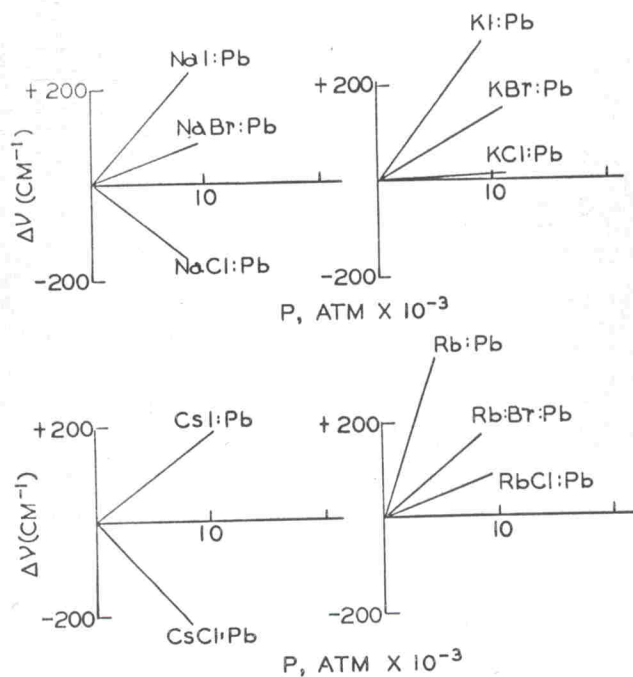


Fig. 10 Initial frequency shift vs pressure ten alkali halides activated by Tl.

Fig. 11 Initial frequency shift vs pressure eleven alkali halides activated by lead.



having different energies. The characteristic colors are due to transitions between these levels. One of the most active branches of theoretical chemistry is crystal field theory, which attempts to relate these transitions to the intensity of the crystal field. With pressure one varies the ion-ligand distance and thus the strength of the field. This provides a very direct test of the theory. A very extensive program is underway in this area, but only one example is shown here. Figure 12⁽¹⁷⁾ shows the increase of splitting with pressure for two of the peaks in $[\text{Ni}(\text{NH}_3)_6] \text{Cl}_2$. From each of these peaks it is possible to calculate the change of field intensity with pressure. If crystal field theory were rigorous these changes would be the same. From Fig. 12 we see that the theory actually applies quite well. There is a discrepancy of about 2 per cent of the total energy. This is larger than the possible experimental error and indicates the degree to