



Fig. 9 Photos of TlBr in cell taken at various wavelengths

characteristic in the long run, since rather than adjust to a roughly dispersed sample placed between the diamonds, they crush and/or redistribute the sample into a thin reasonably uniform layer. (The uniformity of such a layer is probably a function of the compressibility of the sample and the area of the diamonds.)

After the qualitative observations an attempt was made to evaluate other parameters affecting the pressure distribution. The distribution across the diameter of the cell for a sample of nickel dimethylglyoxime diluted with 2 parts NaCl at different pressures is given in Fig. 11. These curves are representative of curves obtained between 10 and 60 kbar. The curves are nearly parabolic in shape, although a more critical plot, viz., P versus $(\Delta r)^2$, where Δr is the normalized distance from the center of the diamond, is not exactly linear as expected for a true parabola. This latter type of plot representing the data in Fig. 11 is given in Fig. 12. As mentioned in the

foregoing, curves obtained at 5 kbar or less were not generally true parabolas. Pressure gradient studies in the sub-10 kbar range were not exhaustively studied, since data from the literature in the very high-pressure region (above 10 kbar) is of primary concern.

The effect of diluent concentration is demonstrated by the pressure distribution given in Fig. 13 for nickel dimethylglyoxime diluted with 2, 3 and 5 parts of NaCl as indicated. The elastic properties of nickel dimethylglyoxime are not known but from our studies, it appears to be less plastic than LiF, NaCl, KBr or TlBr and gives a less parabolic distribution in the pressure cell than these materials. In high dilutions, the mixture behaves more like NaCl and there is little resistance to forming a parabolic distribution about the center (as justified later in the discussion). As the dilution is decreased the pressure distribution becomes more nearly like that of pure nickel dimethylglyoxime. More light will be shed on the