

cylinder material was 94 percent WC 5-3/4 percent cobalt binder (Plansee 850). Figure 3 shows a schematic cross section of the cell design for this experiment.

The design of the cell is obviously quite important and the key to success or failure of the experiment. The cell had to provide the conceptual physical ideas discussed in the introduction with minimum deviations from the ideal. Therefore, one requirement was to make the pressure seals as sharp as possible and/or as isothermal as possible. Additionally the pressure gradient over the temperature gradient in the high pressure cell was to be kept to a minimum.

The reasons for these requirements are illustrated in Figure 4. If the pressure seals are infinitely sharp and there is no pressure gradient in the high pressure cell the dashed line represents the $p(T)$ vs T relation. This is the ideal or perfect experiment. The pressure emf is proportional to the area under the curve.

The actual experimental conditions are shown as the solid line. The points on the graph have been measured in our cell by use of thermocouples and the bismuth transitions. This will be discussed in detail below. The effects of the slight temperature gradient across the pressure seal has not been indicated on the graph. The area under the dashed curve is proportional to the value of the effect we want to measure. We have chosen the experimental pressure to be the pressure of the talc - AgCl interface (piston end) as this gives the best representation of the true area.