

at pressures up to 180000 kg/cm^2 which were ~~xxxxxxxx~~ evidently made in an apparatus for the synthesis of ~~xxxxxxxxxx~~ diamonds /7/. The germanium specimen~~s~~ was placed in a graphite cylinder which ~~xxxxxxxxxxxxxxxxxxxx~~ at the same time served as the heating element. The pressure was determined by means of a calibrated curve constructed on the basis of points of polymorphous transformations of bismuth, thallium, cesium, and barium. The temperature was measured by a platinum-platinorhodium thermocouple. It was found that the melting temperature of germanium decreased over the entire pressure interval.

Experimental Part

In the present work are presented the results of the measurement of melting temperatures of aluminum and copper at pressures up to 18000 kg/cm^2 . It is difficult to obtain a temperature above 600° in the channel of the multiplier in a medium of isopentane, since cracking of the isopentane occurs and the ~~gas~~^{carbon} hereby evolved closes the coils of the heating spiral. Therefore, in conducting experimen~~t~~^{ts} involving superhigh pressure and high temperature it is expedient to use gas as the medium transmitting the pressure.

During the development of the multiplier design described earlier /8/ in the Institute for Crystallogra~~y~~^{ph} two types of units were designed which made it possible to create superhigh gas pressures in conjunction with high temperature. In the first of these the medium transmitting the pressure was carbon dioxide. In it was conducted a study of the dependence of the polymorphous transformation of black phosphorous on pressure and temperature /9/. In the second type of apparatus the medium transmitting the pressure is nitrogen or argon. The conical vessel for superhigh pressure in this apparatus is provided with a unit making it possible to feed gas compressed to 2000 kg/cm^2 to it and then to cut off the channel of the cone from ~~xxxxxxxxxxxxxxxxxxxx~~ the gas feed.

The determination of the dependence of the melting temperatures of aluminum and copper on pressure was conducted in an apparatus of the second type. Pure aluminum (99.99%) and copper (99.995%) were used in the investigations.