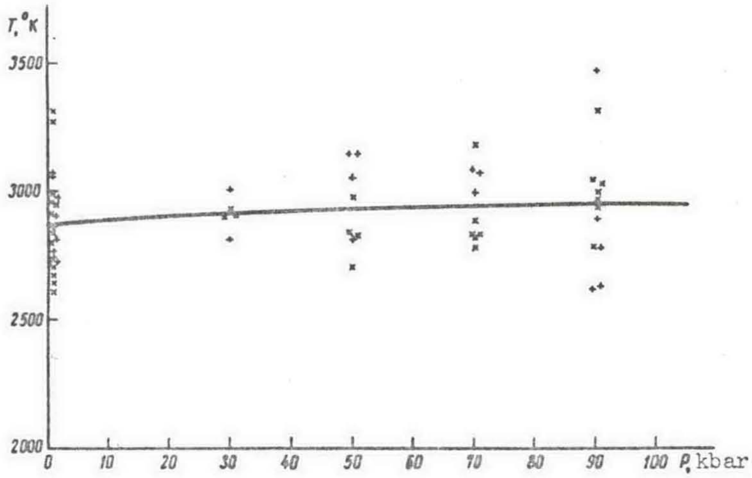

Fig. 1. Melting curve of molybdenum up to 90 kbar, calculated simultaneously from all the experimental points. + - temperatures determined from I_1/I_2, × - temperatures determined from I_2/I_3.

We recall only that the experiment was based on a determination of the ratio I_1/I_2 of the radiation intensities in two narrow spectral regions corresponding to the wavelengths λ_1 and λ_2, and a subsequent comparison of this ratio with Planck's law.

We used for the research molybdenum containing not more than 0.05% impurities.

To reduce the errors resulting from selective absorption of the radiation by the vapor of the investigated substance, we determined simultaneously the intensity ratios I_1/I_2 and I_2/I_3 of two pairs of sections. As seen from the figure, the corresponding temperatures remain within the limits of measurement error. The melting curves calculated separately from these temperatures practically coincide with the curve calculated from all the experimental points. The figure shows that the melting temperature of molybdenum increases monotonically with pressure, to 2955°K at 90 kbar, if the initial melting point is taken, in accord with [1], to be 2883 ± 50°K at room temperature. The experimental data reduced by the least-squares method can be represented also in the form of the linear equation

$$T = 2883 + 0.8 \cdot 10^{-3} P;$$

where T is the melting temperature in °K and P is the pressure in bars. The errors were calculated from the deviations of the experimental points from the smoothed curve. The probable error in the measurement of the temperature is ±4%, and in the measurement of pressures ±4%.

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[1] Rare Metals Handbook, C.A. Hampel, ed., (Russ. transl.), Mir, 1965, p. 400 [Reinhold]; M.A. Filyand, E.I. Semenova, Svoistva redkikh elementov (Properties of Rare Elements), Metallurgiya, 1964, p. 458.

[2] L.F. Vereshchagin and N.S. Fateeva, Zh. Eksp. Teor. Fiz. 55, 1145 (1968) [Sov. Phys.-JETP 28, 597 (1969)]; N.S. Fateeva and L.F. Vershchagin, PTE No. 3, 222 (1970).