ANALYTICAL DESCRIPTION OF EXPERIMENTAL ISOTHERMS FOR SURFACE TENSION OF BINARY METAL SYSTEMS WHICH FORM STABLE CHEMICAL COMPOUNDS

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The analysis of the available in the literature experimental isotherms of surface tension (ST) for metal systems shows that they can be divided into two large groups:

1. Isotherms of ST with a monotonic variation of ST, depending on the composition (approximately half of the available).

2. Isotherms with some features on curves with corners, extrema, points of inflections, etc. These isotherms have a complex form. The main reason for the appearance of features on isotherms of ST is the appearance in the system of capillary-active molecular formations of type A_nB_m, stable at the temperature of ST measurement.

It is shown that four types of the simplest isotherms of ST can be distinguished from the isotherms of the first group, which are described by the equation proposed in [1]. The average deviation of the calculated PN from the experimental ones allowed by this equation is about 1%.

The paper also analyzes the isotherms of the second group of ST. It is found that a complex system $A-B$ with features can be represented in the form of combinations of simple systems of the first group of isotherms PN. This approach allows to describe complex isotherms ST for binary system equation [1] is quite satisfactory. Methods of calculations of isotherms of ST of binary systems with one and two stable chemical compounds are considered in detail. The paper shows for the first time the role of A_nB_m molecular formations in the formation of surface properties of binary system alloys.

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1. Kalazhokov Zamir Kh., Zikhova K.V., Kalazhokov Z.Kh., Kalazhokov Kh.Kh., TaovaT.M. Calculation of isotherms for surface tension of melts for multicomponent metal systems. // High Temperature. - 2012. - V.50 N3. - P.469-472.