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CHEMISTRY

CALCULATED AND EXPERIMENTAL PHASE DIAGRAMS OF THE SIMPLEST BINARY SYSTEMS

(E/T)

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The position of the curves representing the decomposition of solutions on the phase diagrams of binary systems may be calculated /1-4/ from : a) the melting points T_A and T_B of the pure components, and b) their heats of fusion Q_A and Q_B, and also c) from the value of the so-called energies of mixing in different phases (U_o^I in the liquid, U_o^{II}, U_o^{III}, etc. in the solid phases). Theory has as yet only been compared with experiment /4/ for four binary systems having diagrams of the same type, viz. diagrams with a eutectic point and complete insolubility in the solid phases. In this paper we present a comparison with twenty experimental diagrams of three different types.

1. Diagram of the "Cigar" Type. The conditions for the formation of this type of diagram, according to calculation, are the following :

a) The system should be two-phase (both components in the solid