

from equations (3) that at the point of equal concentrations

.....R.p. 389 (6)

The criterion for the formation of a diagram of this type is

.....R.p. 389 (7)

(together with the satisfaction of inequalities (2) or (2a)).

Table 1

Key

1) System

2) calc.

3) expt.

According to (6), at the point of equal concentrations

.....R.p. 389 (8)

In this relation between  $T_m$  and  $x_0$  there are no unknown energies of mixing; hence the validity of the calculation may be verified primarily <sup>by reference to</sup> ~~from~~ the satisfaction of relation (8).

Data for ten binary systems forming diagrams with points of equal concentrations are given in Table 1 ( $T_m$  the calculated  $T_m$  were determined from (8) by means of experimental values of  $x_0$ ).

The calculated and experimental values of  $T_m$  agree closely for all the systems considered except two: gold-copper and gold-nickel, which are characterized by the greatest difference <sup>between</sup> ~~in~~ the atomic radii of the components, so that the "lattice-distortion energy" is a maximum /2/. The deviations from relation (8) for the Au-Cu and Au-Ni systems qualitatively agree with those expected ~~from~~ after ~~examination~~ considering the energy of distortion.