Thermochemical Investigations on the Ternary System Bi/Se/O.
II. The Binary System Bi$_2$O$_3$–SeO$_2$

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We describe the existence of six thermodynamically stable phases on the binary line Bi$_2$O$_3$–SeO$_2$ at room temperature: Bi$_{12}$SeO$_{20}$, Bi$_{10}$Se$_2$O$_{19}$, Bi$_{16}$Se$_5$O$_{34}$, Bi$_2$SeO$_5$, Bi$_2$Se$_3$O$_9$ and Bi$_2$Se$_4$O$_{11}$. At higher temperature we obtained evidence for Bi$_{20}$Se$_3$O$_{36}$ and Bi$_4$SeO$_8$. The decomposition pressures were measured for all phases in a membrane zero manometer and the enthalpy of formation and the standard entropy was determined. The phase barogram and phase diagram followed from total pressure measurements and differential thermoanalysis. The standard enthalpies of formation of all phases were also derived from solution calorimetry. The necessary data of transitions on molar enthalpies were obtained by DSC- and Cp-measurements.

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