

This study presents a comparison of thermodynamically calculated phase compositions of Ag-Ga-Ge alloys at fixed temperatures with phase analysis results of alloys annealed at respective temperatures. Three isothermal sections of the Ag-Ga-Ge system at 25, 100 and 300 °C have been extrapolated using optimized thermodynamic parameters from the literature. An experimental analysis of the microstructure was carried out using optical microscopy, scanning electron microscopy and energy-dispersive spectrometry. Results obtained by x-ray powder diffraction methods (identified phases and lattice parameters) were compared with the results of the predicted phase equilibria. Good overall agreement between experimental and calculated values was obtained. The Brinell hardness and electrical conductivity of selected alloys were measured and obtained results were analyzed with respect to their overall compositions and phase constituents.