

Properties of the ternary Ag-Ge-In alloys

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Abstract

Alloying presents an important and time consuming task for researchers all over world. Since the properties of materials can be change by adding other elements it is encouraging to study different alloys in way to get alloys with good properties. In our group we are focusing on Ge alloys and their properties [1-5] due to the technical importance of the systems based on Ge and their special application as a phase change memory materials (PCM materials). Electrical and mechanical properties of ternary Ag-Ge-In system have not been investigated before. The reason for this study is experimental investigation of electrical and mechanical properties of the ternary Ag-Ge-In alloys at room temperature (25°C). In the current study phase equilibria of the isothermal section at 25 °C have been investigated by using scanning electron microscopy (SEM) with energy dispersive spectrometry (EDS) and x-ray diffraction (XRD). Ternary Ag-Ge-In alloys have been tested with Brinell hardness test and test for electrical conductivity. Experimental results of Brinell hardness and electrical conductivity have been used for obtaining mathematical model for estimation of those properties for every composition of alloys at room temperature (25°C). Obtained results aimed to provide better insight into properties of alloys which should contribute to further expansion of their application possibilities.

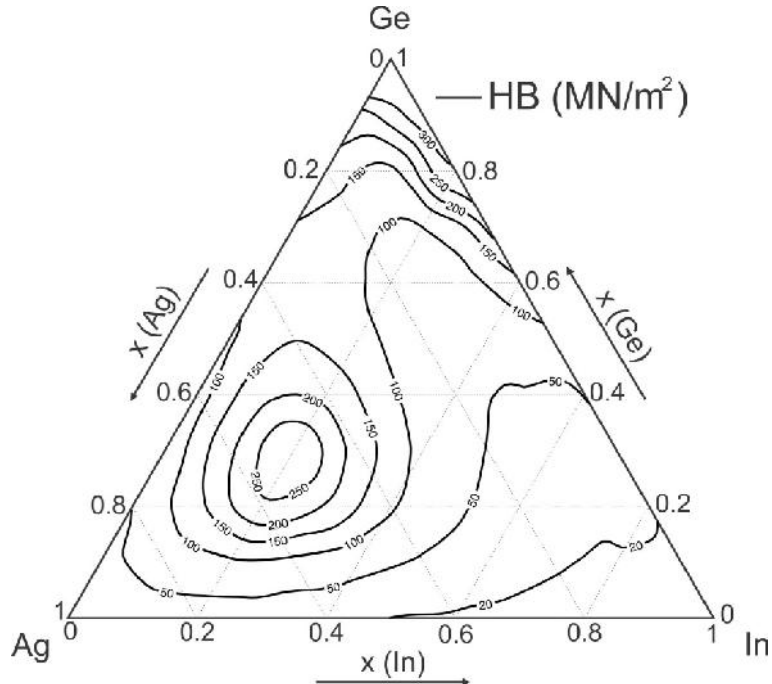
Acknowledgements

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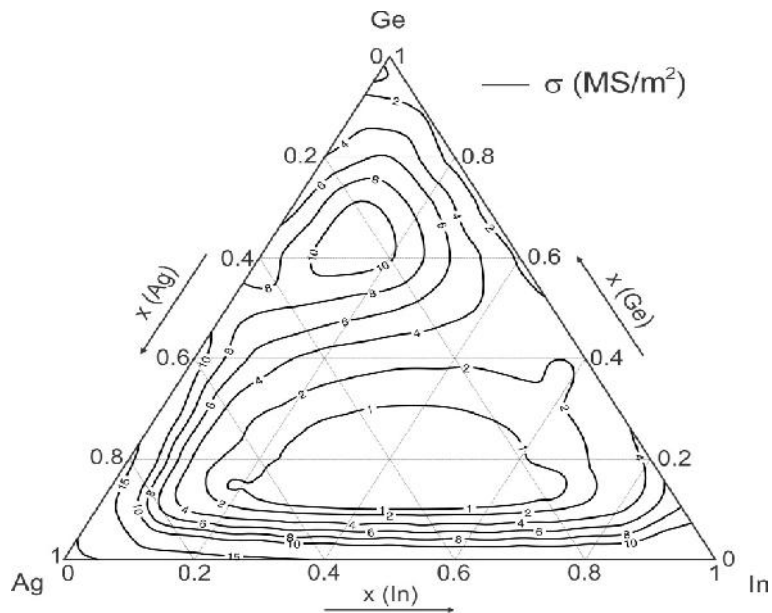
References

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Graphical abstract:



Calculated iso-lines of Brinell hardness in ternary Ag-Ge-In system.



Calculated iso-lines of electric conductivity defined in ternary Ag-Ge-In system.