

BULK METALLIC GLASSES – GLASS FORMABILITY AND FLOW

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The discovery and evolution over the past decade of several new families of metallic alloy compositions which can be fully vitrified in thick sections has refocused attention on the factors that influence the glass forming ability (GFA) of alloys. The reduced glass temperature (RGT) proved to be a useful figure of merit for predicting GFA for the more conventional metallic glass formers. However, the usefulness of the RGT for bulk glass formers is more problematical. The various reasons for this will be analysed. The discussion will encompass the viscous flow characteristics of bulk glass forming alloys, for which data exist, and, in particular, a comparison with the behaviour of alloys of low and intermediate GFA, in order to examine the degree to which any clear qualitative differences in behaviour may exist between them. The validity of other parameters for correlating with GFA will also be considered including the significance of the 'fragility' parameter.