

Thermodynamic aspects of glass science and processing

Abstract

The thermodynamics of the glassy state is one of the most thrilling topics of materials science, with new insights being published at an amazing pace. The first part of the presentation will review the present state of the art from a pragmatic point of view, covering the development of the past 100 years. In the second part of the presentation, it will be shown how the fundamental concepts of the glassy state are employed to quantitatively describe industrial fabrication processes as well as the performance of multicomponent glasses in complex environmental situations. Examples given will address industrial melting processes, the development of glass ceramic sealants, and the corrosion of glasses in aqueous media.