

## spinodal

Curve defining the region of composition and temperature for a binary mixture across which a transition occurs from conditions where single-phase mixtures are metastable to conditions where single-phase mixtures are unstable and undergo phase separation by spinodal decomposition.

Notes:

1. The spinodal curve for a binary mixture is defined as the geometrical locus of all states with

$$\left(\frac{\partial^2 \Delta_{\text{mix}} G}{\partial \phi^2}\right)_{T,p} = 0.$$

2. In the unstable region bounded by the spinodal curve, phase domain separation is spontaneous, *i.e.*, no nucleation step is required to initiate the separation process.

**Source:**

PAC, 2004, 76, 1985 (*Definition of terms related to polymer blends, composites, and multiphase polymeric materials (IUPAC Recommendations 2004)*) on page 1998