**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:**