

**Advanced Thermodynamics**  
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**Spinodal decomposition**

**Questions:**

1. How is the stability of an alloy phase in a binary system defined thermodynamically?
2. How do the composition profiles during precipitation process differ for an alloy outside the spinodal with another alloy which is within the spinodal domain?
3. Why the activation energy for spinodal decomposition tends to zero?
4. What is the difference between chemical and coherent spinodal?
5. Under what conditions spinodal decomposition does not take place in an alloy at room temperature in spite of it being within the spinodal regime?