

Unit 12 - Week 10: Liquid - Liquid Equilibria of Multicomponent Non-Ideal Systems

Course outline

How does an NPTEL online course work?

Week 0: Prerequisite

Week 1: Introduction of Phase Equilibria

Week 2: Estimation of Thermodynamic Properties

Week 3: Potential Energy Functions and Intermolecular Forces

Week 4: Molecular Theory of Corresponding States

Week 5: Intermolecular Interactions and E.o.S

Week 6: Gaseous Mixtures and Fugacity

Week 7: Liquid Mixtures and Fugacity

Week 8: Models for Activity Coefficients using Excess Gibbs Energy

Week 9: Vapour - Liquid Equilibria of Multicomponent Non-Ideal Systems

Week 10: Liquid - Liquid Equilibria of Multicomponent Non-Ideal Systems

● Lec 1: Liquid - Liquid Equilibrium

● Lec 2: Liquid - Liquid Equilibrium - 2

○ Quiz : Assessment 10

○ Weekly feedback form for week 10

● Lecture Notes: Week 10

○ Solution: Assignment 10

Week 11: Vapour - Liquid - Liquid Equilibria of Multicomponent Non-Ideal Systems

Week 12: Solid - Liquid Equilibria of Non-Ideal Systems

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Assessment 10

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-08, 23:59 IST.

1) For a binary liquid mixture if the condition given is $T > T_c$, where T_c is the critical solution temperature, then the solution is

4 points

- Completely miscible
 Partially miscible
 Completely immiscible
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Completely miscible

2) For a binary liquid mixture if the condition given is $T < T_c$, where T_c is the critical solution temperature, then the solution is

4 points

- Completely miscible
 Partially miscible
 Completely immiscible
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Partially miscible

3) In phase diagram for partially miscible liquids, which of the following is a correct statement

4 points

- Binodal curve is boundary between one phase region and two phase region
 Within two phase region, spinodal curve distinguishes the unstable region from metastable region
 All of the above
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

4) For a mixture of real solution $g^E = Ax_1x_2$, thus the condition of instability occurs whenever

4 points

- $\frac{A}{RT} = 1$
 $\frac{A}{RT} > 2$
 $\frac{A}{RT} \ll 2$
 $\frac{A}{RT} = 0$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $\frac{A}{RT} > 2$

5) Border line between stability and instability of a liquid mixture is called

4 points

- Incipient instability
 Critical instability
 Stable point
 Unstable point

No, the answer is incorrect.
Score: 0

Accepted Answers:
Incipient instability

6) Condition of instability of a binary liquid mixture is given as

4 points

- $\left(\frac{\partial^2 g_{mix}}{\partial x^2}\right)_{T,P} < 0$
 $\left(\frac{\partial^2 g_{mix}}{\partial x^2}\right)_{T,P} \gg 0$
 $\left(\frac{\partial g_{mix}}{\partial x}\right)_{T,P} = 0$
 $\left(\frac{\partial^2 g_{mix}}{\partial x^2}\right)_{T,P} > 0$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $\left(\frac{\partial^2 g_{mix}}{\partial x^2}\right)_{T,P} < 0$