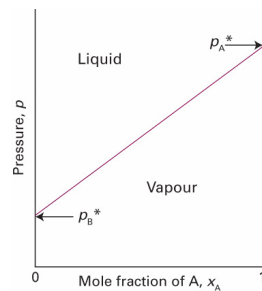


## Fazni dijagrami binarnih smjesa

Ako tekućine slijede Raoultov zakon:

$$p = p_A + p_B$$

$$p = p_B^* + (p_A^* - p_B^*) x_A$$

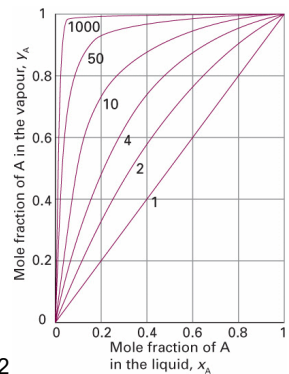


1

## Binarne smjese

$$y_A = \frac{x_A p_A^*}{p_B^* + (p_A^* - p_B^*) x_A}$$

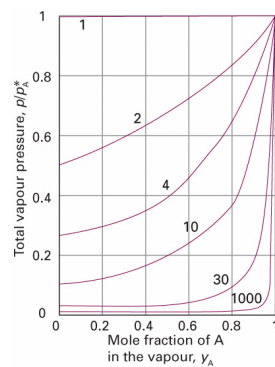
$$y_B = 1 - y_A$$



2

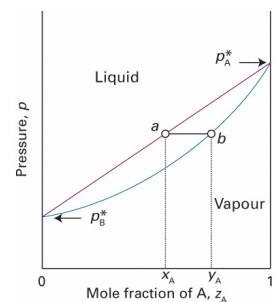
## Binarne smjese

$$p = \frac{p_A^* p_B^*}{p_A^* + (p_B^* - p_A^*) y_A}$$



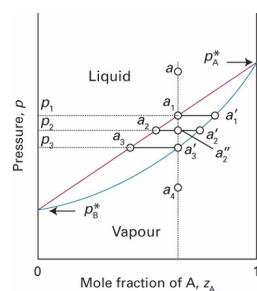
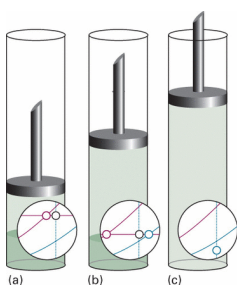
3

## Binarne smjese



4

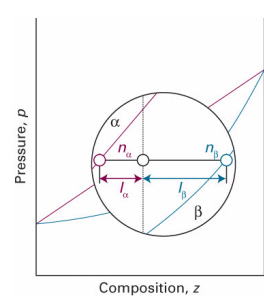
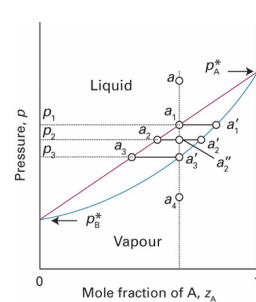
## Binarne smjese



5

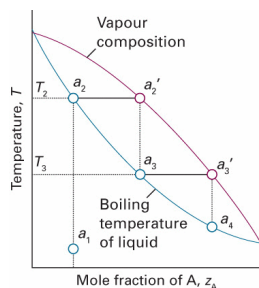
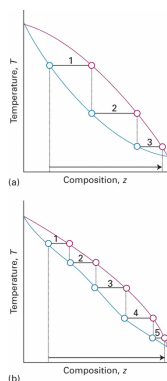
## Binarne smjese

$$n_\alpha l_\alpha = n_\beta l_\beta$$



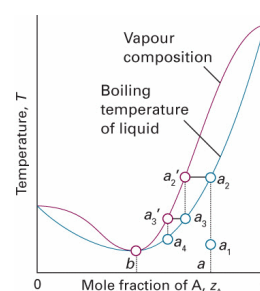
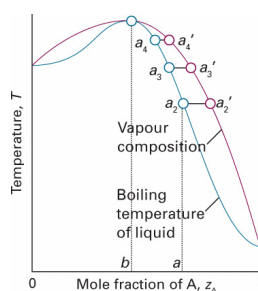
6

## Frakcijska destilacija



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## Azeotropi

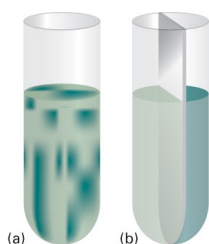


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## Destilacija binarne smjese

Tekućine koje se ne miješaju međusobno

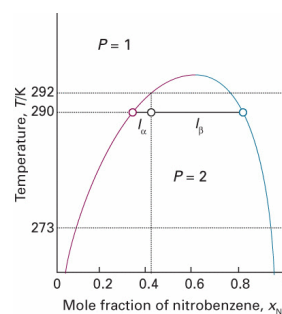
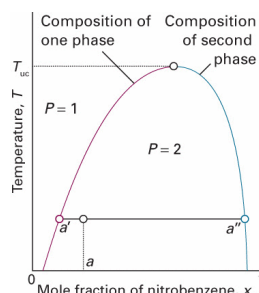
$$p = p_A^* + p_B^*$$



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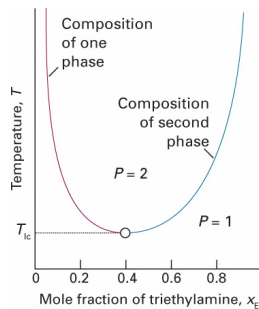
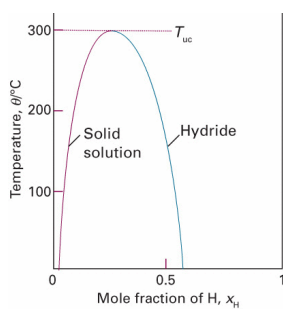
## Binarne smjese

Tekućine koje se djelomično miješaju međusobno



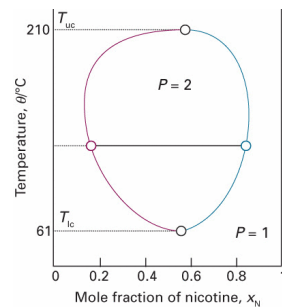
10

## Kritične temperature smjesa



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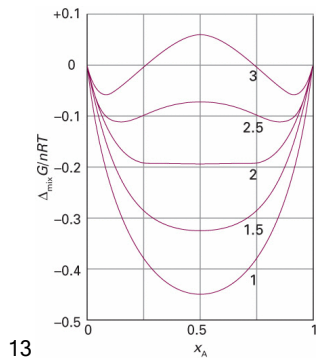
## Kritične temperature smjesa



12

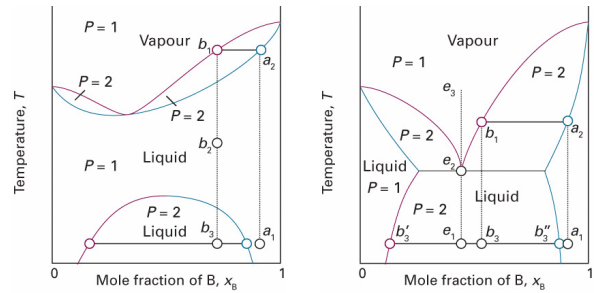
## Fazni dijagrami binarnih sistema

$$\Delta G_{\text{mix}} = nRT(x_A \ln x_A + x_B \ln x_B + \xi x_A x_B)$$



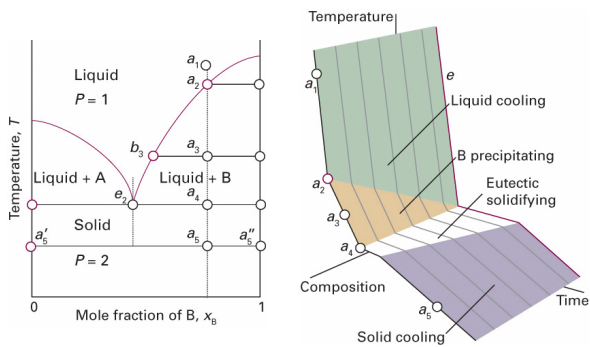
13

## Destilacija binarnih smjesa



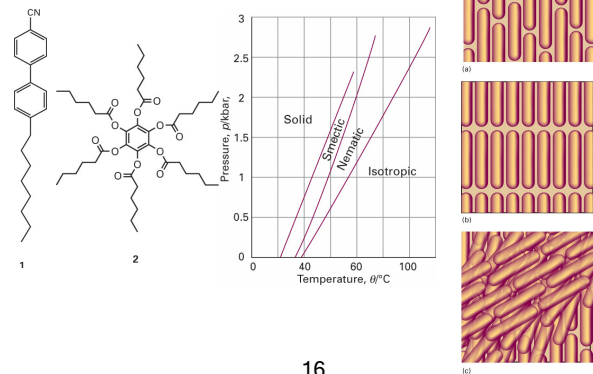
14

## Fazni dijagram krutina-tekućina



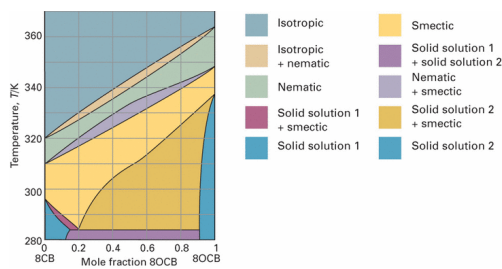
15

## Mezofaze



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## Mezofaze



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## Aktivitet

Aktivitet otapala A:

$$\mu_A = \mu_A^* + RT \ln a_A$$

$$a_A = \gamma_A x_A \quad \gamma_A \rightarrow 1 \quad x_A \rightarrow 1$$

$$\mu_A = \mu_A^* + RT \ln x_A + RT \ln \gamma_A$$

Aktivitet otopljene tvari B:

$$\mu_B = \mu_B^\ominus + RT \ln a_B$$

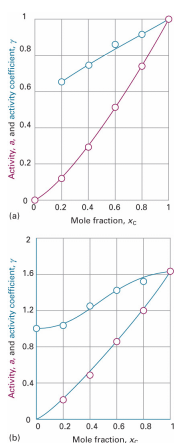
$$a_B = \gamma_B x_B \quad \gamma_B \rightarrow 1 \quad x_B \rightarrow 0$$

$$\mu = \mu^\ominus + RT \ln a \quad \gamma_B \rightarrow 1 \quad x_B \rightarrow 0$$

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## Aktivitet

$$\mu_A = \mu_A^* + RT \ln a_A$$



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## Biološko standardno stanje

$$\mu(\text{H}^+) = \mu^\ominus(\text{H}^+) + RT \ln(\text{H}^+)$$

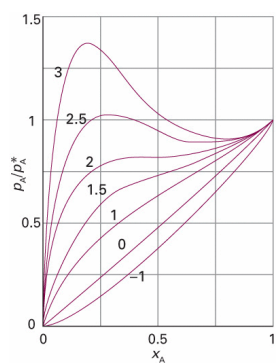
$$\mu^\oplus(\text{H}^+) = \mu^\ominus(\text{H}^+) - RT \ln 10$$

$$RT \ln 10 = 39.96 \text{ kJ mol}^{-1}$$

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## Aktivitet

$$\frac{p_A}{p_A^*} = x_A e^{\xi(1-x_A)^2}$$



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