

Clase 29 29 Marzo 2022

Título de la nota

29/03/2022

$$y = m x + b$$

$$y = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1$$

$x =$ valor
a interpolar

P_t y_{Ben}

0.700	0.3000	389.47	413.26	802.73	0.485	0.515
0.750	0.2500	417.29	344.38	761.67	0.548	0.452

$$y_{Ben} = 0.5$$

$$y = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1$$

$$P = \left(\frac{802.73 - 761.67 \text{ mmHg}}{0.515 - 0.452} \right) (0.5 - 0.452) + 761.67 \text{ mmHg}$$

$$P = \left(\frac{802.73 - 761.67 \text{ mmHg}}{0.515 - 0.452} \right) (0.5 - 0.452) + 761.67 \text{ mmHg}$$
$$= 792.9538 \text{ mmHg}$$

0.950	0.0500	528.56	68.88	597.44	0.885	0.115
1.000	0.0000	556.38	0.00	556.38	1.000	0.000

Mezclado		
moles de Benceno	2	
moles de Tolueno	20	
Isopleta composición	0.0909	x Ben
	0.0909	y Ben

$$P = \left(\frac{597.44 - 556.38 \text{ mmHg}}{0.115 - 0} \right) (0.0909 - 0) + 556.38 \text{ mmHg}$$

$$= 588.83 \text{ mmHg}$$

Punto de rocío		
p rocío	588.26	mm Hg
composición	0.0909	y Ben
	0.9091	y Tol

p°_{Ben}	1377.53	mm Hg
--------------------------	---------	-------

p°_{Tol}	556.38	mm Hg
--------------------------	--------	-------

moles de Tolueno	5	
isopleta composición	0.5000	x Ben
	0.5000	y Ben

$$= \left(\frac{p^{\circ}_{\text{Tol}} X_{\text{Ben}}}{p^{\circ}_{\text{Tol}} X_{\text{Ben}} + p^{\circ}_{\text{Ben}} (1 - X_{\text{Ben}})} \right)$$

$$= X_{\text{Ben}}$$

$$= (556.38)(0.5)$$

$$\frac{(556.38)(0.5)}{(556.38)(0.5) + 1377.53(1-0.5)}$$

$$= 0.28769447$$

$$p_{\text{total}} = \underset{\text{mmHg}}{1377.53} (0.28769447) + \underset{\text{mmHg}}{556.38} (1 - 0.28769447)$$

$$= 792.63 \text{ mmHg}$$

Punto de burbuja		
p burbuja	900.00	mm Hg
composición	0.4185	x Ben
	0.5815	x Tol

$p^{\circ} \text{ Ben}$	1377.53	mm Hg
-------------------------	---------	-------

$p^{\circ} \text{ Tol}$	556.38	mm Hg
-------------------------	--------	-------

$$p_{\text{total}} = 900 \text{ mmHg}$$

Raoult

$$p_{\text{total}} = p^{\circ} \text{ Ben} \cdot x_{\text{Ben}} + p^{\circ} \text{ Tol} \cdot x_{\text{Tol}}$$

$$900 \text{ mmHg} = p^{\circ} \text{ Ben} \cdot x_{\text{Ben}} + p^{\circ} \text{ Tol} (1 - x_{\text{Ben}})$$

$$900 \text{ mmHg} = P^{\circ}_{\text{Ben}} X_{\text{Ben}} + P^{\circ}_{\text{Tol}} (1 - X_{\text{Ben}})$$

$$900 \text{ mmHg} = 1377.53 \text{ mmHg} X_{\text{Ben}} + 556.38 \text{ mmHg} (1 - X_{\text{Ben}})$$

$$\begin{array}{ccc} 900 & - & 556.38 \\ \text{mmHg} & & \text{mmHg} \end{array} = (1377.53 - 556.38) X_{\text{Ben}}$$

$$X_{\text{Ben}} = 0.4185$$

$$X_{\text{Tol}} = 1 - 0.4185 = 0.5815$$

Punto de rocío		
p rocío	900.00	mm Hg
composición	0.6405	y Ben
	0.3595	y Tol

$$P^{\circ} \text{Ben} \times X_{\text{Ben}} = p_{\text{total}} y_{\text{Ben}}$$

$$y_{\text{Ben}} = \frac{P^{\circ} \text{Ben} \times X_{\text{Ben}}}{p_{\text{total}}}$$

$$y_{\text{Ben}} = \frac{(1377.53 \text{ mmHg})(0.4185)}{900 \text{ mmHg}}$$

$$= 0.6405$$