

(13.73) 44.2 Mg ASA  $C_9H_8O_4$  } Find TT  
 0.358 l  $H_2O$  @  $25^\circ C$

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$PV = nRT$   
 $P = \frac{nRT}{V}$

0.0168 atm

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(20)  $H_f = \frac{6.01 \text{ kJ}}{\text{Mole}}$  ,  $\frac{75.2 \text{ J}}{\text{Mole} \cdot K}$

50g  $H_2O(s)$  ICE  $0^\circ C$   $\xrightarrow{H_f}$  50g  $H_2O(l)$   $0^\circ C$   $\xrightarrow{\text{Heat capacity}}$   $H_2O(l)$   $22^\circ C$




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$\frac{6.01 \text{ kJ}}{\text{Mole } H_2O}$	$\frac{50 \cancel{\text{g}}}{18 \cancel{\text{g}}}$	$\frac{\text{Mole } H_2O}{18 \cancel{\text{g}}}$	$= 16.69 \text{ kJ}$	(16.7) <span style="color: red;">21.3 kJ</span>
$\frac{75.2 \text{ J}}{\text{Mole} \cdot K}$	$\frac{22 \cancel{K}}{18 \cancel{\text{g}}}$	$\frac{\text{Mole } H_2O}{18 \cancel{\text{g}}}$	$\frac{50 \cancel{\text{g}}}{18 \cancel{\text{g}}}$	$= 4.5956 \text{ J}$

(4.6)

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(26) ETH  $C_2H_5OH$  FP  $-114.6^\circ C$   $K_f = \frac{2^\circ C}{M}$   
 46 g/mole

Solute:  $50g C_3H_8O_3$  (92 g/mole) + Solvent: 200g ETH

$\Delta T = (K_f * M) i$   
 $\Delta T = (2 * 2.7) i$   
 $\Delta T = 5.4^\circ C$

$M = \frac{\text{moles } C_3H_8O_3 \text{ solute}}{\text{Kg } C_2H_5OH \text{ solvent.}}$   
 $= \frac{\frac{50g}{92g/mole}}{0.2 \text{ Kg}} = 2.7 M$

$-114.6$   
 $- 5.4$   
 $-120$

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0.3m glucose in ethanol

Calc FP 1.99  
 BP 1.22

FP  $-114.6$   
 BP  $78.4$

$\Delta T = (K * M) i$   
 FP  $\Delta T = (1.99 * 0.3) i$   
 $0.6$   
 $- 114.6$   
 $- 115.2$

BP  $\Delta T = (K * M) i$   
 $= (1.22 * 0.3) i$   
 $= 0.37$

$78.4$   
 $+ 0.37$   
 $78.77$

Jan 11-9:13 AM