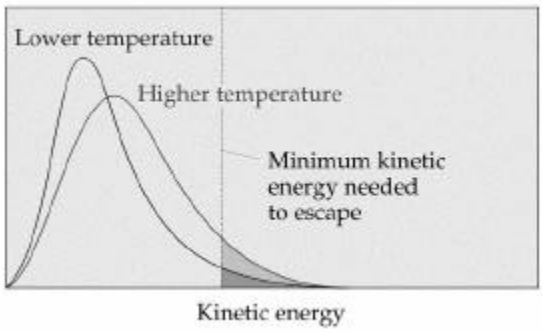
Announcements – 12/6/00

- **Final Exam:** Monday, 12/11, ***8:30 am*** *(new time!)*
  - Info page updated!
  - Prob Set Solns (Ch. 9 and 11) now online
- **EXTRA Review/Problem Sessions**
  - Thursday (12/7): noon - 2 pm, ***B104*** (new room!)
  - Sunday (12/10): 4:15 - 6:00 pm, B112
- **Quiz and Exam #3 Addendum**
  - pickup after class

1

Vapor Pressure is Temperature Dependent

- Fraction of molecules with sufficient K.E. to escape surface *increases with temperature:*



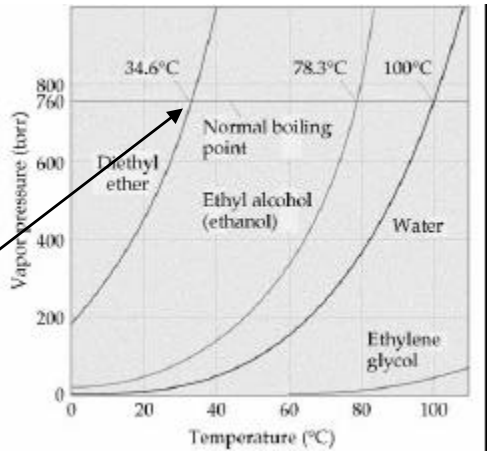
2

Temp Dependence of VP

- We define the ***boiling point*** as the *temperature at which:*

$$VP = P_{ext}$$

- At P_{ext} = 1 atm, this is called the ***Normal BP***



Clausius-Clapeyron Equation

- The relationship between VP and temperature can be quantified by the equation:

$$\text{Ln } P = (-\Delta H_{vap}/RT) + C$$

- Thus, a plot of *Ln P versus 1/T* will be a straight line with a <u>slope = $-\Delta H_{vap}$ x R</u>

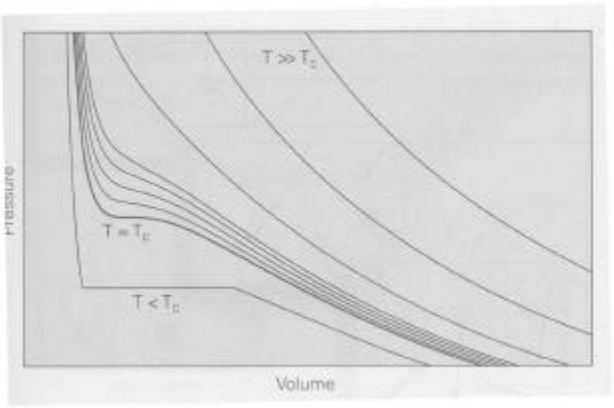
-convenient way to: determine value of ΔH_{vap}
determine VP at any temp T

P-V Isotherms: Critical Temperature

-only get ideal gas behavior at high temperatures

-below a *critial temperature* (T_c), volume abruptly decreases at some pressure

(phase change to liquid)



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Phase Diagrams

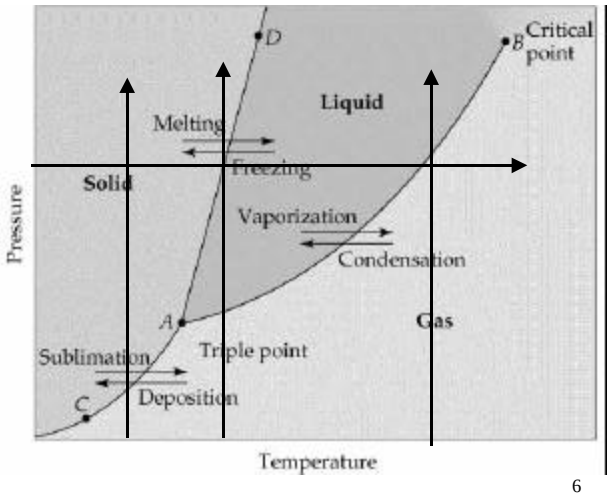
AB: *VP curve*

Pt. B: *Critical Point*

(Liquid, Gas: No diff)

Pt. A: *Triple Point*

(all 3 phases in equilibrium)



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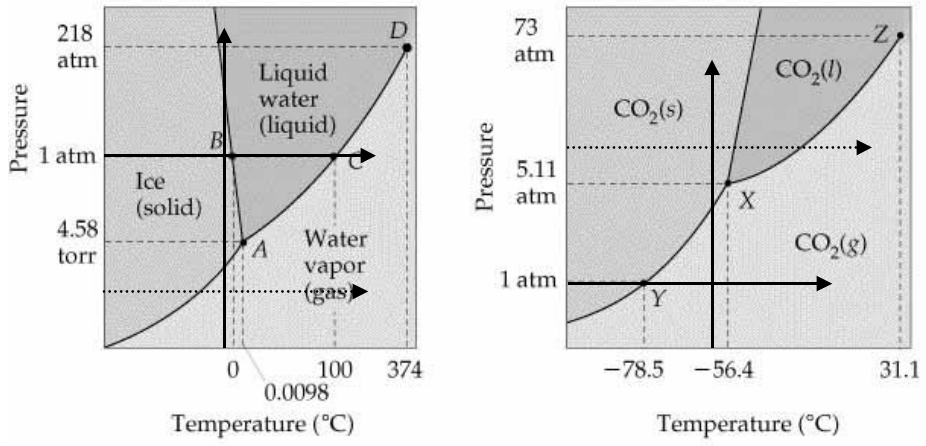
Phase Diagrams: Water and CO_2



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