

Announcements – Lecture XV – Tuesday, Nov 1st

1. Fourth Lab – Saturday, November 5th ... 1-4pm ... ISB 155/160 (A-E)

a) *Print lab prior to coming to lab -- use the 'Print Friendly Version' located on the top left hand side of the page – this is the version that contains the 'Data Sheet' that you will hand in upon completing the lab.*

b) *Third set of Lab Owls will appear in Owl after this lab. There are a total of 4 sets of Lab Owls and they are worth 25% of the Lab Grade.*

2. Exam II: Tuesday, November 8th, 1:00-2:15, In Class

3.



iClicker:

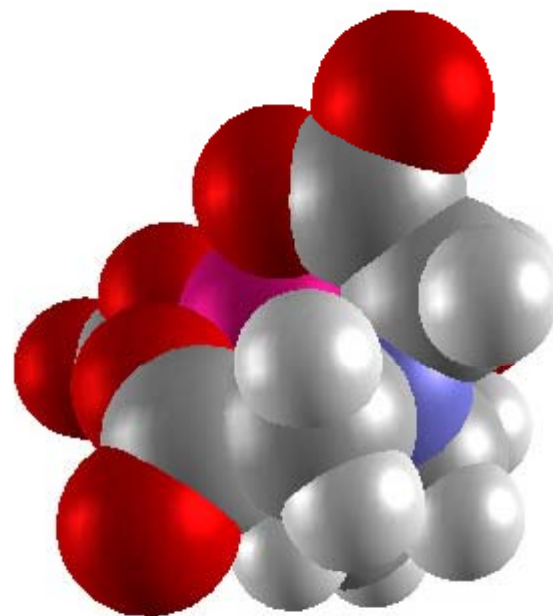
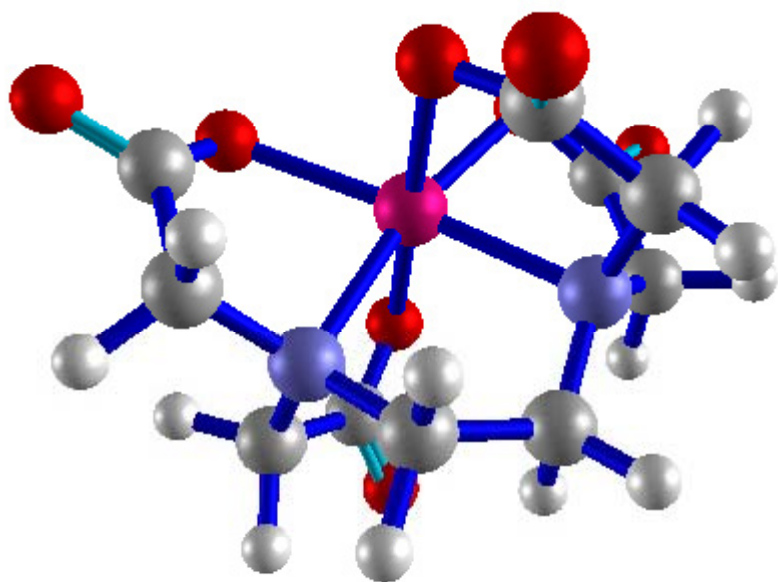
Choose any letter: A-E

3.11 Consequence of Molecular Polarity

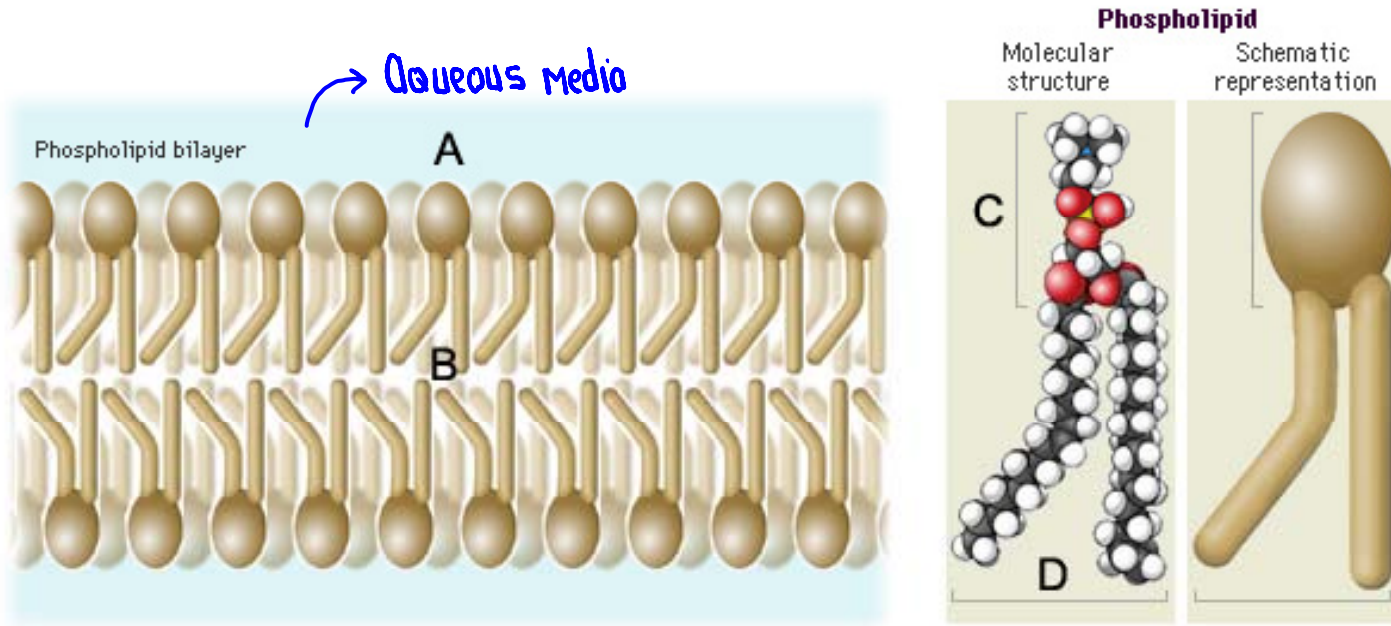
Salad dressings ... Lead poisoning ... Chelating therapy

EDTA: Ethylenediaminetetraacetic acid.

See class web site ... Lead Poisoning



3.11 Consequence of Molecular Polarity

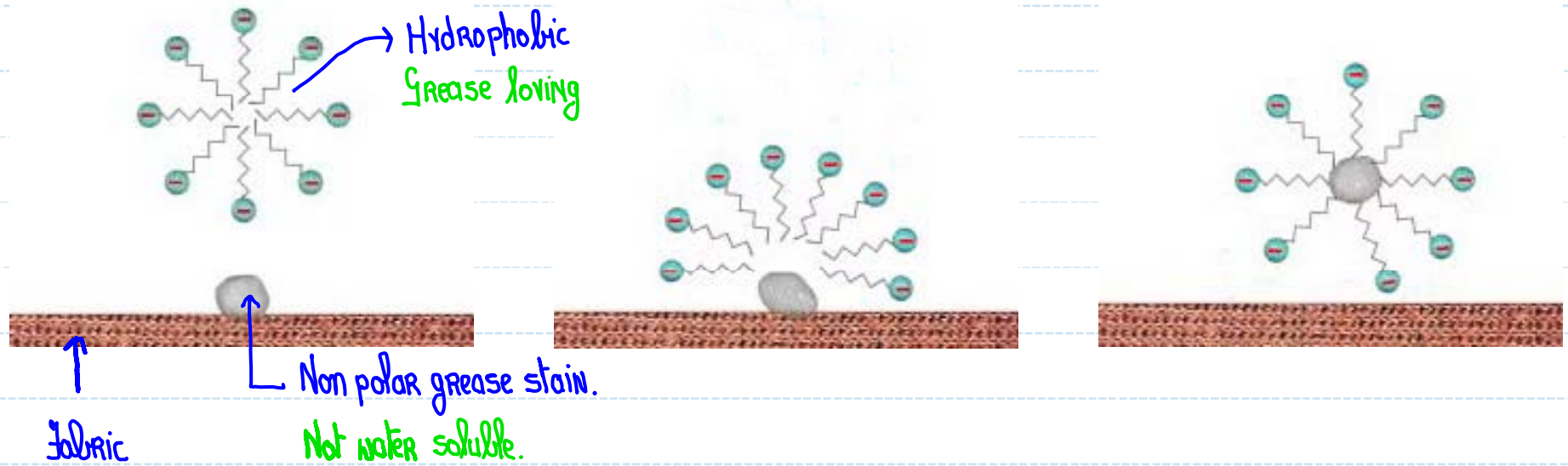


Non polar
Hydrophobic

Polar
Hydrophilic

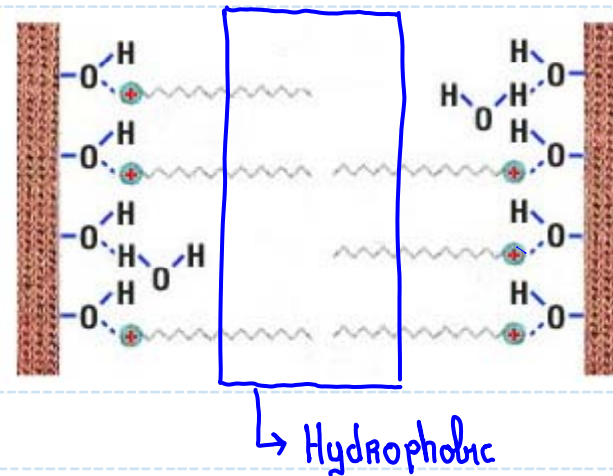
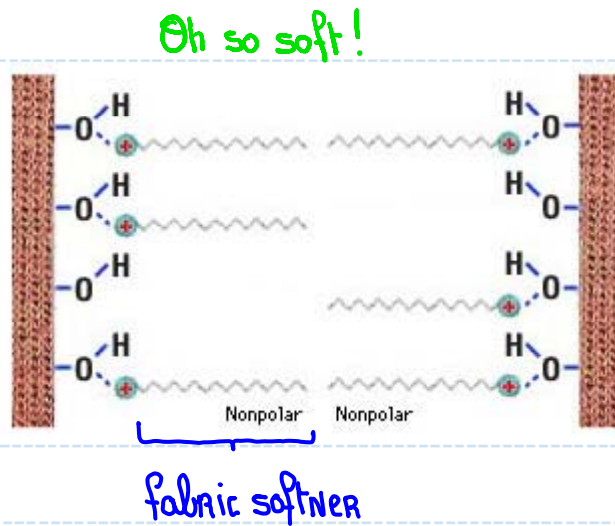
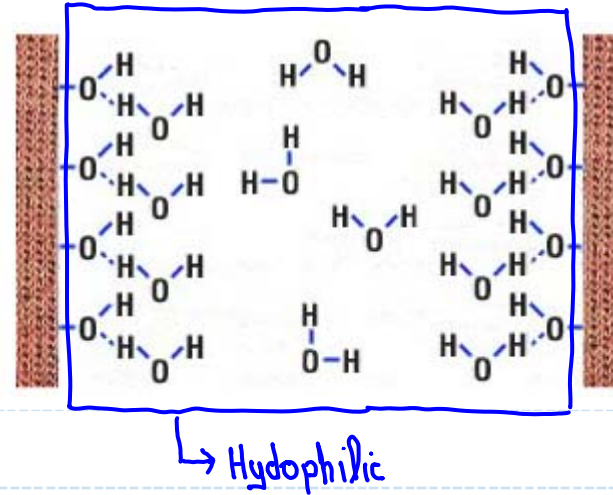
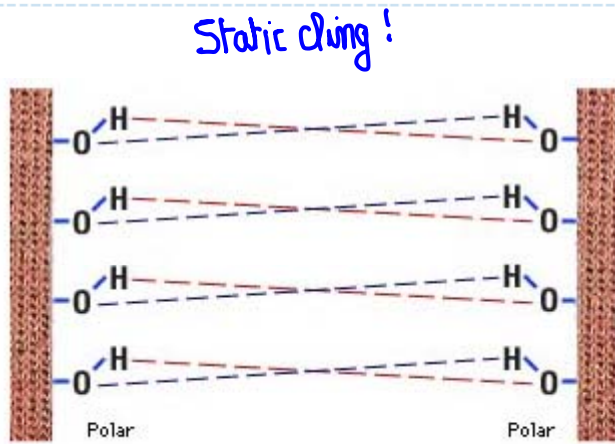
3.11 Consequence of Molecular Polarity

Detergents

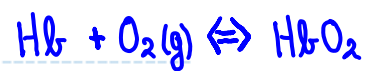
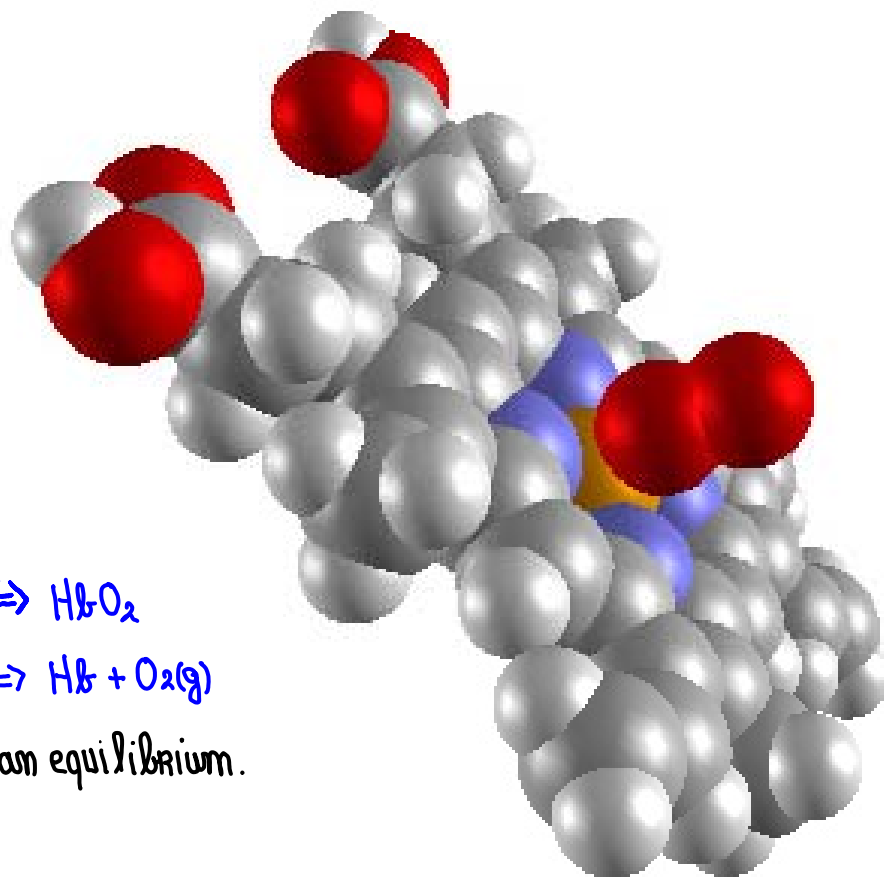
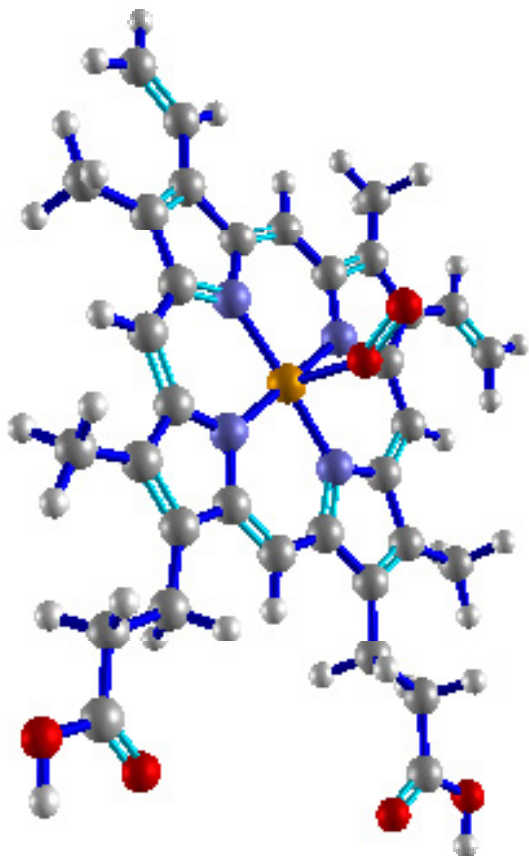


? How might the reverse of this process be of use in medicine.

3.11 Consequence of Molecular Polarity

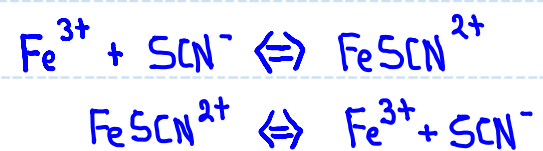
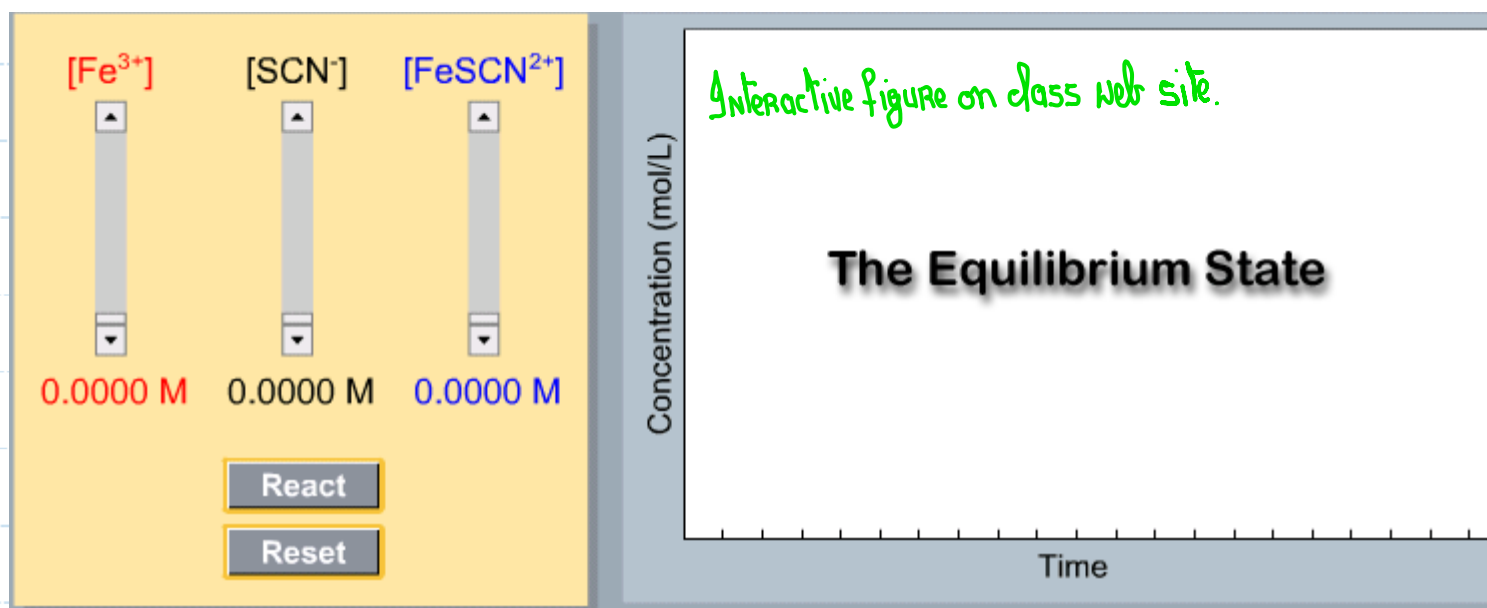


7.5 What Does It Mean to Say That a Reaction Has Reached Equilibrium



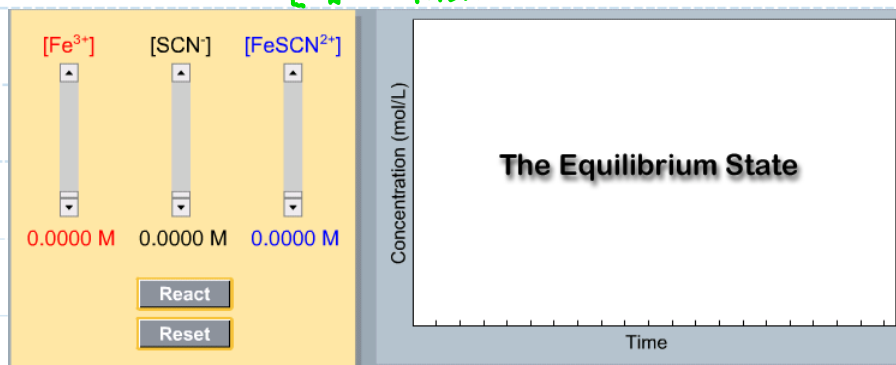
" \rightleftharpoons " used to indicate an equilibrium.

7.5 What Does It Mean to Say That a Reaction Has Reached Equilibrium



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* [] = mol.L⁻¹



Starting Concentrations			
	[Fe ³⁺]	[SCN ⁻]	[FeSCN ²⁺]
#1	0.004	0.007	0
#2	0	0	0.007
#3	0.004	0.003	0.004

Equilibrium Concentrations					
	[Fe ³⁺]	[SCN ⁻]	[FeSCN ²⁺]	[Fe ³⁺][SCN ⁻]/[FeSCN ²⁺]	[FeSCN ²⁺]/[Fe ³⁺][SCN ⁻]
#1	2.285 × 10 ⁻³	5.285 × 10 ⁻³	1.714 × 10 ⁻³	7.046 × 10 ⁻³	141.9
#2	4.333 × 10 ⁻³	4.333 × 10 ⁻³	2.666 × 10 ⁻³	7.042 × 10 ⁻³	142.0
#3	5.069 × 10 ⁻³	4.069 × 10 ⁻³	2.930 × 10 ⁻³	7.040 × 10 ⁻³	142.0

$$\frac{[\text{Fe}^{3+}][\text{SCN}^-]}{[\text{FeSCN}^{2+}]} = \text{Constant}$$

$$\frac{[\text{FeSCN}^{2+}]}{[\text{Fe}^{3+}][\text{SCN}^-]} = \text{Constant}$$



7.6 What is an Equilibrium Constant and How Do We Use It?

Writing Equilibrium Expressions

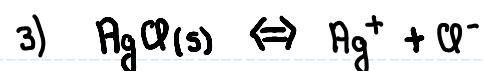
1) $K = \frac{[\text{Products}]}{[\text{Reactants}]}$

$K = \text{equilibrium constant.}$

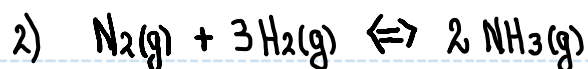
2) When writing equilibrium expressions (equations) ... pure solids and liquids do NOT appear in the expression.



$$K = \frac{[\text{H}_2\text{O}_2]}{[\text{H}_2][\text{O}_2]}$$

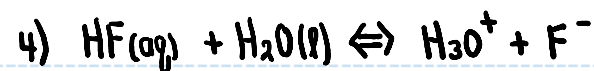


$$K = [\text{Ag}^+][\text{Cl}^-]$$



$$K = \frac{[\text{NH}_3][\text{NH}_3]}{[\text{N}_2][\text{H}_2][\text{H}_2][\text{H}_2]}$$

$$K = \frac{[\text{NH}_3]^2}{[\text{N}_2][\text{H}_2]^3}$$



$$K = \frac{[\text{H}_3\text{O}^+][\text{F}^-]}{[\text{HF}]}$$