

Le Chatelier's Principle-Lab Questions

2. Favours reactants (pink) when H<sub>2</sub>O added
3. Favours products (blue) when Cl<sup>-</sup> added
4. Expect less Cl<sup>-</sup> (precipitated) favouring reactants (pink)
6. Heat causes shift → blue  
Cooling causes shift → pink

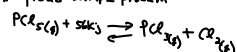
Patterns -

- \* add reactant → more products
- \* add product → more reactants
- \* remove reactant → more react (less prod.)
- \* heat & cold.....

Le Chatelier's Principle

If a system at equilibrium is stressed, it will "shift" (reactant/product) to reduce the stress.

Example - p.528 sample problem



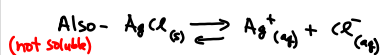
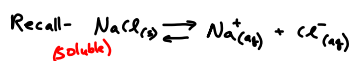
Stress	Shift	Consequences
a) ↑ PCl <sub>5</sub>	P product	lowers PCl <sub>5</sub>
b) ↓ Cl <sub>2</sub>	product	raises [Cl <sub>2</sub> ]
c) ↓ heat	reactants	raise heat
d) ↑ P <sub>tot</sub>	fewer moles of gas	Reactant side has 1 mol gas product side has 2 mol gas Reactant
e) catalyst	no shift	

Summary - Read table 13-2 p.528

Stresses - Pressure, [ ], and temp

Questions - p.533 #1-5  
p.536 #20

Solubility Product Equilibrium



Write K<sub>eq</sub> expression.

$$K_{eq} = \frac{[Ag^+][Cl^-]}{[AgCl]}$$

*heterogeneous equilibrium*

*Solid AgCl is constant*

$$K_{eq} \times [AgCl] = [Ag^+][Cl^-]$$

*constant*

*new constant*

$$\text{Solubility Product} \rightarrow K_{sp} = [Ag^+][Cl^-]$$

*for AgCl K<sub>sp</sub> = 1.8 x 10<sup>-10</sup>*