

VIII. Colloidal Precipitates

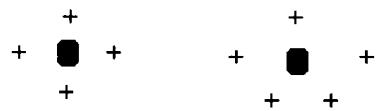
A. Nature of Colloid

1. Not Retained By Filter
2. Do Not Settle Out
3. Must Be Coagulated

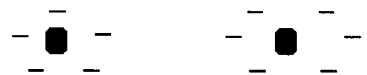
B. Stability of Colloid

1. Depends Upon Charged Ions on Its Surface

AgCl In Excess Ag^+



AgCl In Excess Cl^-



2. Primary Adsorbed Ions
a. AgCl In Excess Ag^+

b. AgCl In Excess Cl^-

c. Counterions

C. Precipitation Of AgCl

1. Initially

- Excess Cl^-

2. As More Ag^+ Is Added There Is

a. Less Excess Cl^-

b. More AgCl Particles

c. No. of Cl^- Pri. Adsorbed/
particle Decreases

d. Double Layer Decreases

3. At Chemical Equivalence

a. Minimum Size of Double
Layer

4. Electrical Double Layer

D. If Too Great An Excess of Ag^+ Is Added -

1. Double Layer Volume Increases

2. Reverse The Process of Coagulation

E. Heating The Solution To Hasten Coagulation

1. Decreased Adsorption With Heat

2. Less Net Charge Per Particle —
Smaller Double Layer

3. Increased Kinetic Energy
Overcome Barrier To Close
Approach

F. Increased Electrolyte
Concentration To Aid Coagulation

1. Decrease Vol. of Counterion
Layer

2. Surface Charge Is More
Completely Neutralized

3. Allows Closer Approach Of
Particles

G. Coprecipitation In Coagulated Colloids

1. By Adsorption

2. Due To Porous Mass Of Loosely Packed Crystals

3. Surfaces Retain Most Primary Adsorbed Ion As Well As Counterions

4. Net Effect

H. Peptization Of Colloids

A. Definition - Process Whereby
A Coagulated Colloid Reverts
To Its Original Dispersed State

B. Using Pure Water

C. Principles

I. PARTIAL SOLUTION TO PROBLEM

- 1. WASH COAGULATED COLLOID
WITH VOLATILE ELECTROLYTE**
- 2. BENEFITS**

IX. PRACTICAL TREATMENT OF COLLOIDAL PRECIPITATES

- A. PRECIPITATE FROM HOT, STIRRED SOLUTIONS TO WHICH SUFFICIENT ELECTROLYTE IS ADDED TO ASSURE COAGULATION.**

- B. DIGEST FOR 1 OR MORE HOURS IN CONTACT WITH MOTHER LIQUOR.**

- C. WASH WITH DILUTE SOLUTION OF VOLATILE ELECTROLYTE**

- D. REPRECIPITATION MAY MINIMIZE EFFECTS OF ADSORPTION**