Titration Relies on Volume as its signals
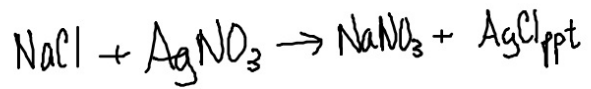
Types:
Acid/Base
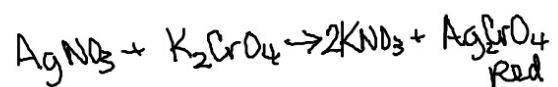Redox
Metal-ligand Complexation
Precipitation

Titration Errors
Equivalence pt. vs. end point

Analyte vs. titrant

Indicators

$(M_1 \times V_1) = (M_2)(V_2)$

$w\% = \dfrac{mass}{100mL}$

$M = \dfrac{mol}{L}$

$\% \, error = \dfrac{(M-A)}{A} \times 100$

Stoichiometry

$NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl_{ppt}$

K_2CrO_4 indicator

$AgNO_3 + K_2CrO_4 \rightarrow 2KNO_3 + AgCrO_4$
Red

10/12   Titration Quiz

1. D   9. D
2. C   10. D
3. A   11. C
4. D   12. E
5. B   13. A
6. B   14. D
7. A
8. C

15. $0.89\% = \dfrac{mass}{500ml}$ $\boxed{4g\,NaCl}$

16. $0.200M = \dfrac{mol}{0.25L}$ $mol = 0.05\,mol \times 208.23g/mol$

$\boxed{10.4g\,BaCl_2}$

17. $(M_1)(V_1) = (M_2)(V_2)$

$(12.0M)(V_1) = (0.600M)(300ml)$ ← 1sf

$V_1 = 15.0\,ml \rightarrow \boxed{20\,ml}$

18. $(?)(25.0ml) = (30.0\,ml)(0.200M)$

$? = 0.240\,M/2\,(diprotic) = \boxed{0.120M}$

19. $(?)(22.0ml) = (30.0ml)(0.200M)$

$? = 0.272\,M/2\,(diprotic) = \boxed{0.136M}$ (A)

$\dfrac{(0.136M - 0.120M)}{0.120M} \times 100 = \boxed{13.3\%\ error}$ (B)

Determination of the mass of Chlorine by a Modified Mohr Method

Timeframe:

Background: to do — investigate Mohr Method

Materials: NaCl Standard, 0.1M $AgNO_3(aq)$, 5% $K_2CrO_4(aq)$, Buret, Erhlenmyer flask ↑25mL, 0.1ml of sample, micropipetor

Procedure: to do — create a step-by-step detailed procedure based on the Mohr Method to determine the quantity of chlorine.

Data Table: to do — create data table to be used for your procedure.