









1) Acids, bases, salts

- (i) Sour 
-  (ii) Turns litmus blue
- (iii) pH = 7
-  (iv) Conducts electricity 

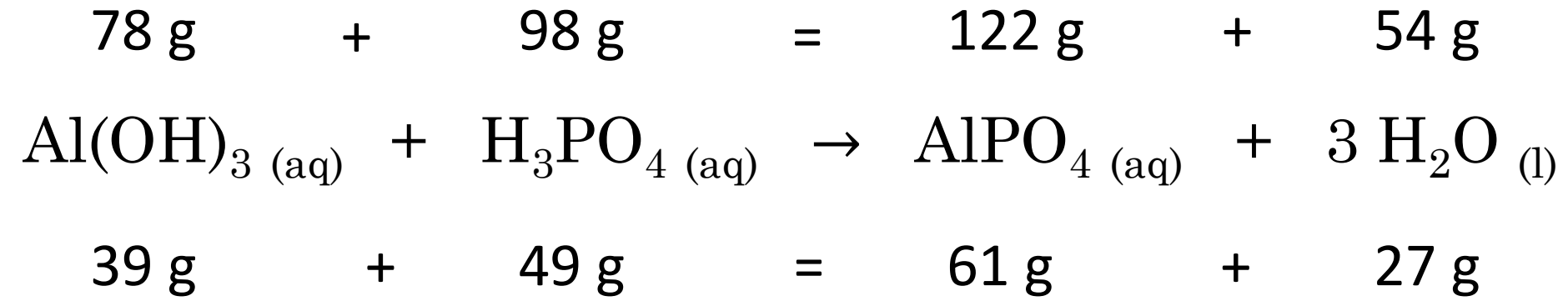
Kung Pao - Base

General Tao - Acid

- (A) i and ii
-  (B) ii and iv
- (C) Only i 
- (D) Only iv

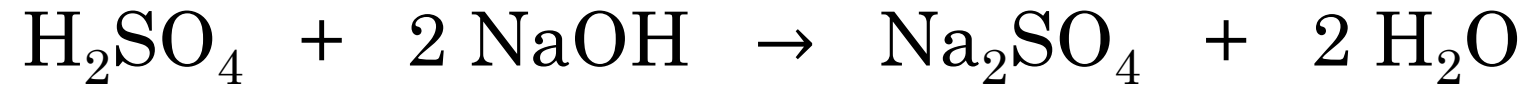
2) Conservation of Mass

Kung Pao



General Tao

3) Reaction type / Products



Neutralization / Salt and Water

Baltic – Black – Mediterranean - Dead

4) Concentration

$$\text{Baltic ; } C = 7000 \text{ ppm} = \frac{7000 \text{ mg}}{1 \text{ L}} = \frac{7 \text{ g}}{1 \text{ L}} = 7 \text{ g/L}$$

$$\text{Mediterranean ; } C = 38 \text{ g/L}$$

$$\text{Dead ; } C = 27.5 \% \text{ m/v} = \frac{27.5 \text{ g}}{100 \text{ mL}} = \frac{27.5 \text{ g}}{0.1 \text{ L}} = 275 \text{ g/L}$$

$$\text{Black ; } C = 2.2 \text{ g / 100 mL} = \frac{2.2 \text{ g}}{0.1 \text{ L}} = 22 \text{ g/L}$$

5) Valence electrons

He (2), C (4), Be (2), Li (1)

6) Periodic Table - Elements

Kung Pao

- Electrons in 2 shells
- Extremely reactive in water
- Tends to lose 1 electron

General Tao

- Electrons in 2 shells
- Extremely reactive
- 7 electrons in outer shell

- (A) Li
- (B) F
- (C) He
- (D) Ne

6) Periodic Table - Elements

Kung Pao

- Electrons in 2 shells
- Extremely reactive in water
- Tends to lose 1 electron

General Tao

- Electrons in 2 shells
- Extremely reactive
- 7 electrons in outer shell

- (A) Li
- (B) F
- (C) He
- (D) Ne

7) Acids ?

1. Ca(OH)_2 Base
2. HCl Acid
3. LiF Salt
4. NH_4OH Base
5. HI Acid
6. CH_3COOH Acid
7. KOH Base

8) Concentration Chlorine level = 1.5 – 3 ppm

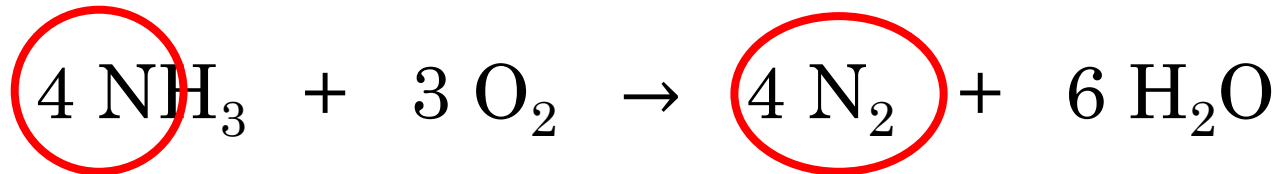
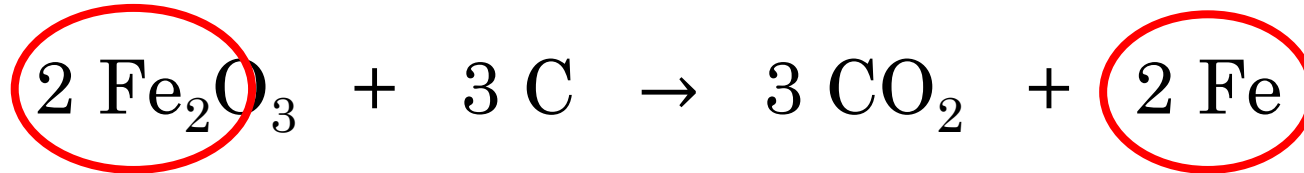
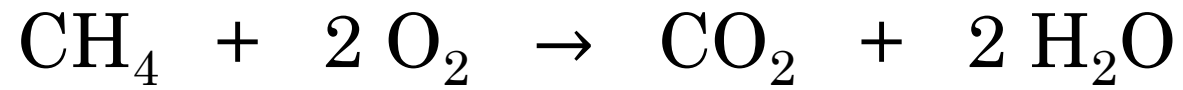
$$A : C = 0.018 \text{ g/L} = \frac{18 \text{ mg}}{1 \text{ L}} = 18 \text{ ppm}$$

$$B : C = 0.018 \% \text{ m/v} = \frac{0.018 \text{ g}}{100 \text{ mL}} = \frac{18 \text{ mg}}{0.1 \text{ L}} = 180 \text{ ppm}$$

$$C : C = 0.0018 \text{ g/L} = \frac{1.8 \text{ mg}}{1 \text{ L}} = 1.8 \text{ ppm}$$

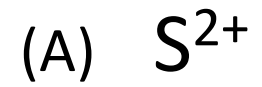
$$D : C = 0.0018 \% \text{ m/v} = \frac{0.0018 \text{ g}}{100 \text{ mL}} = \frac{1.8 \text{ mg}}{0.1 \text{ L}} = 18 \text{ ppm}$$

9) Balanced ?

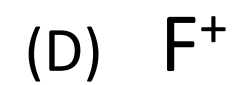
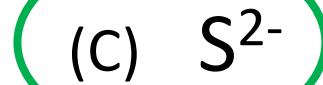
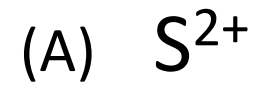


10) Ions

Kung Pao



General Tao



... He decided to bend a metal coat hanger into a hook ...


11) Constraint: Deflection

12) Deformation: Plastic

13)

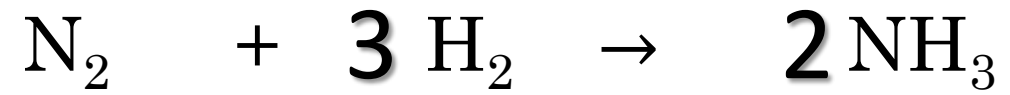
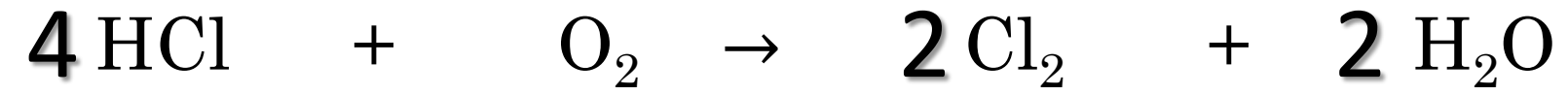
Kung Pao

General Tao



Substance	Red Litmus	Blue Litmus	Indicator Colour
HCl	Red	Red	Yellow
KOH	Blue	Blue	Blue
H ₃ PO ₄	Red	Red	Yellow
Li ₂ O	Red	Blue	Green

14) Balance



16) Wheel attached to frame by an axle

Indirect

Removable

Rigid

Partial

Rotational guiding

17) Nut threads onto axle

Direct

Removable

Rigid

Complete

Helical guiding

18) Disc brakes attached to wheel with screws

Indirect

Removable

Rigid

Complete

Compression

19)

Substance	# Atoms	Substance	# Atoms
Ag	1	CO ₂	3
HCl	2	Au	1
CaCO ₃	5	NH ₃	4
C ₁₂ H ₂₂ O ₁₁	45	V ³⁺	1 or 0

20) Constraint

(i) Ropes Tension

(ii) Supporting bar Deflection

(iii) Bolt Torsion

(iv) Ground Shearing

