

# Cheatography

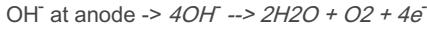
## Chemistry(o620) IGSCE Cheat Sheet by Rachit Murarka (domekig978) via cheatography.com/197486/cs/41630/

### Electrolysis

#### Guidlines

Non-metal at anode	Thin pure Metal at cathode
metal at cathode	Thick impure metal at anode
If halogen present -> anode	Electrolyte soluble salt of metal

Cathode -> least reactive metal



### Metals

#### Iron Extraction

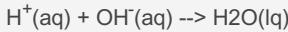
raw materials: coke(C), Hot air, Limestone(CaCO<sub>3</sub>)

1. C + O<sub>2</sub> --> CO<sub>2</sub>
2. CaCO<sub>3</sub> --> CaO + CO<sub>2</sub>
3. CO<sub>2</sub> + C --> 2CO
4. Fe<sub>2</sub>O<sub>3</sub> + 3CO --> 2Fe + 3CO<sub>2</sub> (700 celcius)
5. CaO + SiO<sub>2</sub> --> CaSiO<sub>3</sub>(slag)

### Acid, Bases and salts

#### Neutralization Reaction

Acid + Base --> Salts + Water



#### Rules

- All Nitrates are soluble
- all sodium, potassium, ammonium salts are soluble
- all chlorides are soluble except lead and silver
- all sulfates are soluble except Barium, calcium ,lead
- all carbonates and hydroxides are insoluble

#### Methods

acid + metal --> salt + hydrogen (MAZ/T metal)

acid + carbonate--> Salt + water + carbon Dioxide

Titration: acid + alkali --> salt + water (reactive metals)

acid + *insoluble* base --> salt + water(unreactive metals)

Precipitation(*insoluble*): Soluble salt + Soluble salt --> *insoluble* salt + soluble salt

- example: Barium Chloride + Sodium Sulfate --> sodium chloride + barium sulfate

### Organic Chemistry

#### All Organic Compounds

Combustion: organic compound + oxygen --> carbon dioxide + water

### Organic Chemistry (cont)

#### Alkanes

Substitution Reaction: Alkane + Chlorine --> Chloroalkane + Hydrogen  
-example :CH<sub>4</sub> + Cl<sub>2</sub> --> CH<sub>3</sub>Cl + HCl

Cracking: long alkane --> shorter alkane + alkene  
-example: C<sub>12</sub>H<sub>26</sub> --> C<sub>10</sub>H<sub>22</sub> + C<sub>2</sub>H<sub>4</sub>

Thermal Cracking: Catalyst- Broken Unglazed Pottery

Catalytic cracking: 550 degree cel and chromium oxide catalyst

#### Alkenes

Hydrogenation: alkene + hydrogen --> alkane (200<sup>deg</sup>, nickel)

Hydration: alkene + steam --> alcohol (300<sup>deg</sup>, 6000 kPa, Phosphoric(V))

halogenation(alkene Test): alkene + bromine --> diobromoalkene (brown color)

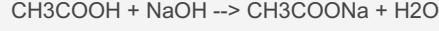
#### Alcohol

Oxidation: ethanol + oxygen --> ethanoic acid + water (Potassium Manganate V)

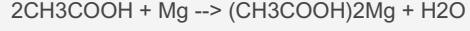
Fermentation: glucose --> ethanol + carbon dioxide(yeast)

#### Carboxylic Acid

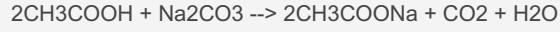
ethanoic acid + sodium hydroxide --> sodium ethanoate + water



ethanoic acid + magnesium --> magnesium ethanoate + hydrogen



ethanoic acid + sodium carbonate --> sodium ethanoate + carbon dioxide



### Chemical Reactions

#### Haber Process



Conditions:

- 20000 kPa

- 450 celcius

- Iron catalyst

#### Contact Process



Conditions:

- 200 kPa

- 450 celcius

- Vanadium(V)oxide

### Chemistry Of the environment

#### Test For Water

Anhydrous copper(II)sulfate turns from white to blue

- Cobalt(II) Chloride Paper turns from blue to pink

- impure water has higher boiling point

#### Catalytic Converter



By Rachit Murarka  
(domekig978)

cheatography.com/domekig978/

Published 10th December, 2023.

Last updated 18th December, 2023.

Page 1 of 1.

Sponsored by [Readable.com](#)

Measure your website readability!

<https://readable.com>