



## (Inorganic Chemistry)

**OXIDE ORE:**

$\text{*ZnO}$	$\rightarrow$	Zincite	$\text{* Fe}_2\text{O}_3$	$\rightarrow$	Heamatite
$\text{* Fe}_3\text{O}_4$	$\rightarrow$	Magnetite	$\text{* AlO}_x(\text{OH})_{3-2x}$	$\rightarrow$	Bauxite (where $0 < x < 1$ )
$\text{* Al}_2(\text{OH})_4\text{Si}_2\text{O}_5$	$\rightarrow$	Kaolinite (a form of clay)	$\text{* Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$	$\rightarrow$	Limonite
$\text{* Cu}_2\text{O}$	$\rightarrow$	Cuprite or Ruby copper	$\text{MnO}_2$	$\rightarrow$	Pyrolusite
$\text{SnO}_2$	$\rightarrow$	Tinstone or Casseterite	$\text{TiO}_2$	$\rightarrow$	Rutile
$\text{Fe} \cdot \text{Cr}_2\text{O}_4$	$\rightarrow$	( $\text{FeO} + \text{Cr}_2\text{O}_3$ ) Chromite ore	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$	$\rightarrow$	Borax or Tincal
$\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}$	$\rightarrow$	Colemanite	$\text{U}_3\text{O}_8$	$\rightarrow$	Pitch Blende
$\text{FeO} \cdot \text{TiO}_2$	$\rightarrow$	Ilmenite			

**SULPHURISED ORE:**

$\text{* PbS}$	$\rightarrow$	Galena	$\text{HgS}$	$\rightarrow$	Cinnabar
$\text{* ZnS}$	$\rightarrow$	Zinc blende/sphalerite	$\text{* Cu}_2\text{S}$	$\rightarrow$	Copper glance/Chalcocite
$\text{CuFeS}_2$	$\rightarrow$	Copper Pyrite (Chalcopyrite)	$\text{* FeS}_2$	$\rightarrow$	Iron pyrite or Fool's gold
$\text{Ag}_2\text{S}$	$\rightarrow$	Silver glance or Argentite			

**HALIDE ORE:**

$\text{NaCl}$	$\rightarrow$	Rock Salt	$\text{KCl}$	$\rightarrow$	Sylvite / silvine
$\text{CaF}_2$	$\rightarrow$	Fluorspar	$\text{Na}_3\text{AlF}_6$	$\rightarrow$	Cryolite
$\text{AgCl}$	$\rightarrow$	Horn Silver			
$\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$	$\rightarrow$	Carnallite			
Mixture of $\text{KCl}$ and $\text{NaCl}$ (sylvinitite)					

**OXY SALT ORE****(1) CARBONATE ORE:**

$\text{CaCO}_3$	$\rightarrow$	Lime stone	$\text{MgCO}_3$	$\rightarrow$	Magnesite
$\text{CaCO}_3 \cdot \text{MgCO}_3$	$\rightarrow$	Dolomite	$\text{* FeCO}_3$	$\rightarrow$	Siderite
$\text{* ZnCO}_3$	$\rightarrow$	Calamine	$\text{* Cu(OH)}_2 \cdot \text{CuCO}_3$	$\rightarrow$	Malachite or Basic Copper Carbonate
$\text{Cu(OH)}_2 \cdot 2\text{CuCO}_3$	$\rightarrow$	Azurite	$\text{PbCO}_3$	$\rightarrow$	Cerrusite

**(2) SULPHATE ORE:**

$\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$	$\rightarrow$	Gypsum	$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$	$\rightarrow$	Epsom Salt
$\text{PbSO}_4$	$\rightarrow$	Anglesite	$\text{BaSO}_4$	$\rightarrow$	Baryte
$\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$	$\rightarrow$	Glauber Salt			

**(3) NITRATE ORE:**

$\text{KNO}_3$	$\rightarrow$	Indian Salt petre	$\text{NaNO}_3$	$\rightarrow$	Chile Salt petre
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## (Inorganic Chemistry)

**METALS IN LIVING ENTITIES :**

- (a) **Magnesium** is found in chlorophyll.
- (b) **Potassium** is present in plant roots.
- (c) **Manganese, iron and copper** are present in chloroplast.
- (d) **Zinc** is present in eyes of cats and cows.
- (e) **Iron** is present in haemoglobin.
- (f) **Calcium** is present in bones.
- (g) **Vanadium** is present in cucumbers.
- (h) **Chromium** is present in prawn.
- (i) **Cobalt** is present in cynocobalamin (Vitamine-B<sub>12</sub>)

**ALLOYS**

	<b>NAME OF THE ALLOY</b>	<b>COMPOSITION</b>	<b>USES</b>
1.	Magnelium	Al : 98%, Mg : 2%	For making balance
2.	Duralumin	Al: 95%, Cu : 4 % Mg : 0.5 %, Mn : 0.5%	Air craft parts boat machinary
3.	Aluminium bronze	Al:10%, Cu : 90 %	Making coins, photo frames utensils, golden paints
4.	Almica	Al : 20%, Ni : 20 % Co: 10%, Steel : 50%	For making permanent magnet
5.	$\gamma$ -Alloy	Al : 92%, Cu : 4% Mg : 1.5 %, Ni : 2.5 %	Pistons and machine parts
6.	Nickeloy	Al : 95%, Cu : 4 %, Ni : 1%	Air craft parts
7.	Pewter	Pb : 20, Sn : 80	Utensils
8.	Solder	Pb : 60, Sn : 40	Soldering
9.	Type metal	Pb : 75, Sn : 5, Sb:20	Printing type
10.	Bell metal	Cu : 80, Sn : 20	Bells making
11.	Babbit metal	Sn : 90, Sb : 7, Cu : 3	Bearing of machinary
12.	Frary metal	Pb : 97%, Ba: 2%, Ca: 1%	Bearing of machine
13.	Lino type metal	Pb : 83%, Sn : 3%, Sb:14%	Printing type
14.	Brass	Cu:70%, Zn:30%	making utensils condenses tube making utensils, coins, statues
15.	Bronze	Cu: 88-96%, Sn 4-12%	making pumps, turbines of ships, boilers etc.
16.	Monel metal	Cu: 27%, Ni : 68%, Fe : 5%	Flower Vase & ornaments
17.	German silver	Cu: 50%, Zn: 30%, Ni: 20%	Golden yellow colour used for decorative purpose
18.	Dutch metal	Cu: 80%, Zn: 20%	
19.	Nichrome	Ni, Cr, Fe	
20.	Gun Metal	Cu : 87%, Zn:3%, Sn :10%	
21.	Ahnico	Al, Ni, Co	
22.	Con Stantan	Cu : 60% , Ni : 40%	
23.	Artifical Gold	Cu : 90%, Al : 10%	
24.	14 Carat Gold	Au : 54%, Ag : 14% to 30%, Cu : 12-28%	
25.	24 Carat Gold	100% Au	

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26. Elektron Mg (major part), Al (< 9.5%), Y (5.25%), Nd (2.7%) Ag (2.5%)  
Gd (1.3%) Zn (0.9%) Zr (0.6%) Mn (0.5%) and other rare earth metals  
Uses of elektron : Parts of aeroplane and motor cars

27. Stellite : Typical chemical composition of stellite 1 :

Elements	Content
Cobalt, Co	57%
Chromium, Cr	28 – 32%
Tungsten, W	11 – 13%
Carbon, C	2 – 3%

**ALLOY OF STEEL**

1. Vanadium	V : 0.2-1%
2. Chromium	Cr : 2- 4%
3. Nickel Ni :	3-5%
4. Manganese steel Mn :	10-18%
5. Stainless steel	Cr : 12-14 % and Ni : 2-4%
6. Tunguston	W : 10-20%
7. Invar	Ni : 36%