

# INDEX

## A

Acidity of molecules - 692  
 Actinide contraction - 1372  
 Actinides - 1369  
 Active hydrogen 760  
 Adsorbed hydrogen 759  
 Air-reduction method - 736  
 Alkali metals - 823  
 Alkaline earth metals - 859  
 Allotropy - 585  
 alloy-type hydrides 795  
 Allred and Rochow's scale (1958) - 297  
 Aluminium - 935  
 Aluminium borohydride,  $\text{Al}(\text{BH}_4)_3$  - 798  
 Aluminium chloride ( $\text{AlCl}_3$ ) - 940  
 Aluminium nitride ( $\text{AlN}$ ) - 942  
 Aluminium sulphate [ $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$ ] - 942  
 Alumino thermic method 736, 1406  
 Alums - 943  
 Amalgamation process 737  
 Ammonium chloroplatinate [ $(\text{NH}_4)_2\text{PtCl}_6$ ] - 1487  
 Ammonium diuranate,  $(\text{NH}_4)_2\text{U}_2\text{O}_7$  - 1509  
 Ammonium meta vanadate ( $\text{NH}_4\text{VO}_3$ ) - 1455  
 Ammonium molybdate - [ $(\text{NH}_4)_2\text{MoO}_4$ ] - 1465  
 Ammonium sulphate,  $(\text{NH}_4)_2\text{SO}_4$  - 1051  
 Amorphous solids - 572  
 Annealing of steel - 1423  
 Anode mud 739, 1433  
 Anode rays - 11  
 Anode sludge 739, 1433  
 Anomalous properties of Li-834  
 Anson's mass spectrograph - 343  
 Anti bonding molecular orbitals - 550, 553  
 Aqua regia ( $3\text{HCl} + \text{HNO}_3$ ) - 1218  
 Arrhenius concept of acids and bases - 686  
 Artificial radioactivity - 356, 378  
 Atomic bomb - 372  
 Atomic crystals - 580  
 Atomic hydrogen 760  
 Atomic number (A) - 20  
 Atomic orbital - 161  
 Atomic pile - 373  
 Atomic radii - 242  
 Atomic radius - 248  
 Atomic volume - 240  
 Aufbau principle - 161  
 Auric chloride ( $\text{AuCl}_3$ ) - 1495  
 Aurous chloride ( $\text{AuCl}$ ) - 1494  
 Auto-oxidation - 634  
 Auto-reduction method - 736  
 Available chlorine in bleaching powder - 1232  
 Average life period ( $t$ ) - 326  
 Azoimide ( $\text{HN}_3$ ) - 1063

## B

Bachmann's plant - 1229  
 Bayer's process - 936

Barium platinocyanide,  $\text{Ba}[\text{Pt}(\text{CN})_4] \cdot 4\text{H}_2\text{O}$  - 1486  
 Basic beryllium acetate,  $3\text{Be}(\text{CH}_3\text{COO})_2 \cdot \text{BeO}$  - 887  
 Basic calcium nitrate,  $\text{Ca}(\text{NO}_3)_2 \cdot \text{CaO}$  - 1055  
 Basic character of elements - 288  
 Basic cupric acetate,  $\text{Cu}(\text{CH}_3\text{COO})_2 \cdot \text{Cu}(\text{OH})_2$  - 1490  
 Basic lead chromate [ $\text{Pb}(\text{OH})_2 \cdot \text{PbCrO}_4$ ] - 1460  
 Basic properties of halogens - 1195  
 Basicity of molecules - 692  
 Bauxite ( $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ ) - 935  
 Belgian process - 1439  
 Beryllium - 884  
 Beryllium chloride ( $\text{BeCl}_2$ ) - 888  
 Bessemer's convertor, 743  
 Bessemer's process - 1418  
 Bessemerisation - 738, 1428  
 Binary halogen-oxygen compounds - 1222  
 Binding energy - 363  
 Bis-(dimethylglyoximate) nickel (II),  
 Blast furnace - 742, 1412  
 Bleaching power [ $\text{CaOCl}_2$  or  $\text{Ca}(\text{CO})\text{Cl}$ ] - 1227  
 Blue vitriol ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) - 1490  
 Body - centred cubic (bcc) lattice - 580  
 Bohr's atomic model - 24  
 Bohr's theory as applied to H-atom - 53  
 Bohr's theory of nuclear reactions - 358  
 Bohr-Bury scheme - 82,  
 Bohr-Sommerfelds' atomic model - 83  
 Bond angle - 305  
 Bond energy - 261  
 Bond length - 245  
 Bond multiplicity - 247, 558  
 Bond order (B.O.) 247, 248, 558  
 Bond strength - 261  
 Bonding molecular orbitals - 550, 553  
 Borax ( $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ ) - 925  
 Borazine ( $\text{B}_3\text{N}_3\text{H}_6$ ) - 926  
 Borazole ( $\text{B}_3\text{N}_3\text{H}_6$ ) - 926  
 Borderline carbides - 987  
 Borderline hydrides - 801  
 Boric acid ( $\text{H}_3\text{BO}_3$ ) - 923  
 Born coefficient(B) - 609  
 Born exponent(n) 609  
 Born-Haber cycle - 612  
 Boron - 920  
 Boron nitride (BN) - 930  
 Boron trifluoride ( $\text{BF}_3$ ) - 934  
 Boron trihalides ( $\text{BX}_3$ ) - 931  
 Bravais lattices - 579, 580  
 Bronsted-Lowry concept - 686

## C

Cadmium sulphide ( $\text{CdS}$ ) - 1502  
 Cady-Esley concept - 695  
 Calcination - 733  
 Calcium ammonium nitrate (CAN),  $\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3$   
 - 1053  
 Calcium cyanamide,  $\text{CaCN}_2$  - 1055  
 Calcium hydride ( $\text{CaH}_2$ ) - 786

- Calcium superphosphate,  $[\text{Ca}(\text{H}_2\text{PO}_4)_2 + 2(\text{CaSO}_4 \cdot 2\text{H}_2\text{O})]$  – 1057
- Calomel ( $\text{Hg}_2\text{Cl}_2$ ) – 1503
- Carbamide,  $\text{NH}_2\text{CONH}_2$  – 1057
- Carbides – 984
- Carbon disulphide ( $\text{CS}_2$ ) – 981
- Carbon reduction method – 1406
- Carbonyl chloride ( $\text{COCl}_2$ ) – 980
- Carborundum ( $\text{SiC}$ ) – 988
- Caro's acid ( $\text{H}_2\text{SO}_5$ ) – 1172
- Cast iron – 1411
- Catenation – 967, 1038, 1131
- Cathode rays – 1
- Ceramics industry – 946
- Ceric ammonium sulphate,  $\text{Ce}(\text{SO}_4)_2 \cdot 2(\text{NH}_4)_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$  – 1507
- Ceric sulphate,  $\text{Ce}(\text{SO}_4)_2$  – 1507
- Chathrates – 1190, 1269
- Chelate effect – 1316
- Chelates – 1291
- Chelating groups – 1286
- Chelation – 1291
- Chloric acid ( $\text{HClO}_3$ ) – 1234
- Chlorine dioxide ( $\text{ClO}_2$ ) – 1223, 1238
- Chlorine heptoxide ( $\text{Cl}_2\text{O}_7$ ) – 1225
- Chlorine monoxide ( $\text{Cl}_2\text{O}$ ) – 1223
- Chlorine trifluoride ( $\text{ClF}_3$ ) – 526, 1247
- Chloroplatinic acid,  $\text{H}_2[\text{PtCl}_6]$  – 1486
- Chloroplatinous acid,  $\text{H}_2[\text{PtCl}_4]$  – 1485
- Chlorus acid ( $\text{HClO}_2$ ) – 1233
- Chromatography method – 739
- Chrome green ( $\text{CO}_2\text{O}_3$ ) – 1457
- Chrome red [ $\text{PbCrO}_4 \cdot \text{Pb}(\text{OH})_2$ ] – 1460
- Chrome yellow [ $\text{PbCrO}_4$ ] – 1460
- Chromic acid anhydride ( $\text{CrO}_3$ ) – 1458
- Chromic oxide ( $\text{Cr}_2\text{O}_3$ ) – 1457
- Chromic oxide ( $\text{CrO}_3$ ) – 1458
- Chromic sesquioxide ( $\text{Cr}_2\text{O}_3$ ) – 1457
- Chromium – 1400
- Chromium chloride ( $\text{CrCl}_2$ ) – 1456
- Chromium hexacarbonyl,  $\text{Cr}(\text{CO})_6$  – 996, 1005
- Chromium trioxide ( $\text{CrO}_3$ ) – 1458
- Chromous acetate [ $(\text{CH}_3\text{COO})_2\text{Cr}$ ] – 1457
- Chromyl chloride ( $\text{CrO}_2\text{Cl}_2$ ) – 1462
- Close packing of crystals – 589
- Cobalt – 1425
- Cobalt nitrate [ $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ ] – 1482
- Collision radius – 249
- Common alum [ $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$ ] – 943
- Complex hydrides – 797
- Comproportionation reaction – 640
- Compton effect – 48
- Concentration of ore – 732
- Conjugate acid-base pairs – 687
- Contact process – 1157
- Co-ordinate bond – 450
- Coordination compounds – 1285
- Coordination number – 1291
- Coordination number (C.N.) – 590
- Coordination sphere – 1291
- Copper – 1431
- Copper sulphate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) – 1490
- Copperas ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ) – 1476
- Corrosion of iron – 1409
- Corrosive sublimate ( $\text{HgCl}_2$ ) – 1503
- Covalency – 416, 627
- Covalent bond – 412
- Covalent carbides – 988
- Covalent crystals – 581
- Crystal field stabilisation energy (CFSE) – 1333
- Crystal field theory (CFT) – 1330
- Crystal lattice – 575
- Crystal radius – 248
- Crystal structure of :  
     NaCl – 599  
     CsCl – 599  
     Zinc blende ( $\text{ZnS}$ ) – 600  
     Wurtzite ( $\text{ZnS}$ ) – 601  
      $\text{CaF}_2$  – 601  
     Rutile ( $\text{TiO}_2$ ) – 602
- Crystal systems – 577
- Crystalline solids – 572
- Cupellation process – 738
- Cupric cyanide,  $\text{Cu}(\text{CN})_2$  – 1492
- Cupric sulphate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) – 1490
- Cuprous chloride ( $\text{CuCl}$  or  $\text{Cu}_2\text{Cl}_2$ ) – 1489
- Cuprous oxide ( $\text{Cu}_2\text{O}$ ) – 1488
- Cyanide process – 1434, 1437

---

**D**

- Dallon's atomic theory – 1
- d-block elements – 1347
- de-Broglie's concept of matter wave – 90
- Decaborane –  $14(\text{B}_{10}\text{H}_{14})$  – 961
- Defects in crystals – 615
- Defects of Bohr's atomic model – 81
- Dempster's mass spectrograph – 345
- Deniss method – 1203
- Desilverisation of lead – 1345
- Deuterium – 766, 767
- Dewar's coconut charcoal method – 1262
- Diagonal relationship – 158, 205, 215, 447, 835, 909
- Diammine ( $\text{NH}_2\text{NH}_2$  or  $\text{N}_2\text{H}_4$ ) – 1061
- Diamond – 581
- Diborane ( $\text{B}_2\text{H}_6$ ) – 952
- Dichlorine hexoxide ( $\text{Cl}_2\text{O}_6$ ) – 1225, 1238
- Dicobalt octacarbonyl,  $\text{Co}_2(\text{CO})_8$  – 1000, 1010
- Diiron enneacarbonyl,  $\text{Fe}_2(\text{CO})_9$  – 1002, 1008
- Dimanganese decacarbonyl,  $\text{Mn}_2(\text{CO})_{10}$  – 999, 1005
- Dinitrogen tetroxide ( $\text{N}_2\text{O}_4$ ) – 1071, 1074
- Dinitrogen trioxide ( $\text{N}_2\text{O}_3$ ) – 1000, 1074
- Dioxygen difluoride ( $\text{O}_2\text{F}_2$ ) – 1222
- Dipole moment – 432
- Disilane ( $\text{Si}_2\text{H}_6$ ) – 793
- Disproportionation reaction – 639
- Dithionates ( $\text{S}_2\text{O}_6^{2-}$ ) – 1167
- Dithionic acid ( $\text{H}_2\text{S}_2\text{O}_6$ ) – 1167
- Division of the elements into s-, p-, d- and f-block elements – 189

Dual behaviour of water – 689

Duplex process – 1421

**E**

Effective atomic number (EAN) rule – 1003, 1321

Effective nuclear charge ( $Z_{\text{eff}}$ ) – 235, 253, 282

Eigen functions – 107

Eigen values – 107

Electric furnace – 743

Electrochemical (emf) series – 657

Electrochemical cell – 652

Electrolytic reduction method – 737

Electromagnetic separation method – 732

Electron – 21

Electron affinity (EA or  $\Delta_{\text{eg}}H$ ) – 279

Electron-donor-acceptor system – 697

Electronegativity (EN) – 291

Electronic charge density of bonding ( $\Psi^{\text{b}}$ ) and antibonding ( $\Psi^{\text{a}}$ ) molecular orbitals – 551

Electronic configuration of atoms – 160

Electropositive character of elements – 288

Electrovalency – 404

Electrovalent bond – 398

Electrode potential (E) – 649

Ellingham diagrams – 744

Enantiotropy – 585

Energy level diagrams – 140

Equivalent weight – 633

Estimation of available chlorine in bleaching powder – 1233

Etching of glass by  $\text{H}_2\text{F}_2$  – 1215

Evaporation method – 348

Extended form of periodic table – 153

**F**

Face-centred cubic (fcc) lattice – 580

Fajans' rules – 437

f-block elements – 1358

Ferric chloride ( $\text{FeCl}_3$ ) – 1479Ferrous ammonium sulphate,  $[(\text{NH}_4)_2\text{SO}_4 \cdot \text{FeSO}_4 \cdot 6\text{H}_2\text{O}]$  – 1477Ferrous sulphate ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ) – 1476

Fertilisers – 1050

Fisher Ring's method – 1261

Fisher's salt,  $\text{K}_3[\text{Co}(\text{NO}_2)_6]$  – 1483

Fission bomb – 372

Fission reactions – 359

Fluoboric acid ( $\text{HBF}_4$ ) – 935

Fluorides of krypton – 1277

Fluorine – 1201

Fluorocarbons – 1207

Flux – 735

Froth crystallisation method – 739

Froth distillation method – 348

Frenkel defect – 615

Freon – 12, 1208

Froth flotation process – 732

Fulminating gold ( $\text{HN} = \text{Au} - \text{NH}_2$ ) – 1496Fulminating silver ( $\text{Ag}_3\text{N}$ ) – 1494

Furnaces – 742

Fusion bomb – 376

Fusion reactions – 359

**G**

Gaseous diffusion method – 347

General theory of solvent system – 695

Geometrical isomerism – 1299

Glacial phosphoric acid ( $\text{HPO}_3$ ) – 1114

Glass industry – 1028

Gold – 1436

Gold chloride,  $\text{H}[\text{AuCl}_4]$  – 1497

Graphite – 583

Gravity separation method – 732

Green vitriol ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ) – 1476

Group displacement law – 330

**H**Half-life period ( $t_{1/2}$  or T) – 324

Hall's electrolytic process – 937

Hall's process – 936

Halogen acids (HX) – 1213

Halogens – 1188

Hanny and Smyth equation – 430

Hasenclever's plant – 1228

Heavy hydrogen – 766, 767

Heavy water ( $\text{D}_2\text{O}$ ) – 808

Heisenberg's uncertainty principle – 82, 98

Hexa silane ( $\text{Si}_6\text{H}_{14}$ ) – 794Hexammine cobaltic chloride,  $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$  – 1483

High spin octahedral complexes – 1332

Higher boranes – 958

Hoop's electrolytic process – 938

Hund's rule of maximum multiplicity – 164

Hund-Multikan theory – 549

Hybridisation – 506

Hydrated radii – 829

Hydration energy – 409, 829, 862, 1189

Hydrazine ( $\text{NH}_2\text{-NH}_2$  or  $\text{N}_2\text{H}_4$ ) – 1061Hydrazoic acid ( $\text{HN}_3$ ) – 1063

Hydrides of boron – 952

Hydrides of silicon – 790

Hydrobromic acid (HBr) 1218

Hydrochloric acid (HCl) 1217

Hydrofluoric acid ( $\text{H}_2\text{F}_2$ ) – 1213Hydrofluosilicic acid ( $\text{H}_2\text{SiF}_6$ ) – 1019

Hydrogen bomb – 376

Hydrogen bond – 463

Hydrogen-bridge structure of  $\text{B}_2\text{H}_6$  – 956

Hydroiodic acid (HI) – 1219

Hydrolith ( $\text{CaH}_2$ ) – 786

Hydro-metallurgy process – 739

Hydroxylamine ( $\text{NH}_2\text{OH}$ ) – 1065Hypo ( $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ ) – 1162

Hypochlorous acid (HClO) – 1226

Hyponitrous acid ( $\text{HNO}$  or  $\text{H}_2\text{N}_2\text{O}_2$ ) – 1075, 1083  
 Hypophosphoric acid ( $\text{H}_4\text{P}_2\text{O}_6$ ) – 1110, 1118  
 Hypophosphorus acid ( $\text{H}_3\text{PO}_2$ ) – 1108, 1117

---

**I**


---

Induced oxidation – 635  
 Induced radioactivity – 378  
 Inert complexes – 1312  
 Inert electron pair effect – 209, 405, 903, 965  
 Inner transition elements – 1358  
 Inner-orbital octahedral complexes – 1324  
 Interstitial carbides – 986  
 Interhalogen compounds – 1242  
 Intermolecular forces – 473  
 Interstitial sites in closely-packed arrangement of atoms – 595  
 Interstitial hydrides – 795  
 Iodide of Million's base,  $\text{I}_2\text{Hg}_2\text{NH}_2\text{I}$  – 1506  
 Iodine enneaoxide ( $\text{I}_2\text{O}_9$ ) – 1237  
 Iodine heptafluoride ( $\text{IF}_7$ ) – 533, 1248  
 Iodine monobromide ( $\text{IBr}$ ) – 1246  
 Iodine monochloride ( $\text{ICl}$ ) – 522, 1245  
 Iodine nitrate ( $\text{INO}_3$ ) – 1207  
 Iodine pentafluoride ( $\text{IF}_5$ ) – 530, 1247  
 Iodine pentoxide ( $\text{I}_2\text{O}_5$ ) – 1238  
 Iodine perchlorate [ $\text{I}(\text{ClO}_4)_3 - 2\text{H}_2\text{O}$ ] – 1208  
 Iodine sulphate ( $\text{I}_2\text{SO}_4$ ) – 1207  
 Iodine tetroxide ( $\text{I}_2\text{O}_4$ ) – 1237  
 Iodine triacetate [ $\text{I}(\text{CH}_3\text{COO})_3$ ] – 1208  
 Iodine trichloride ( $\text{ICl}_3$ ) – 1246  
 Ionic bond – 303, 398  
 Ionic carbides – 985  
 Ionic crystals – 580  
 Ionic hydrides – 782  
 Ionic radii – 242  
 Ionic radius – 253  
 Ionisation energy (IE or  $I$  or  $\Delta_i H$ ) – 265  
 Iron – 1408  
 Iron pentacarbonyl,  $\text{Fe}(\text{CO})_5$  – 997, 1007  
 Irving – William order of stability – 1313  
 Isobars – 349  
 Iso-electronic species – 257  
 Isomerism – 1296  
 Isomorphism – 588  
 Isotons – 350  
 Isotopes – 336  
 Isotopes of hydrogen – 766

---

**K**


---

Kilns – 742

---

**L**


---

Labile complexes – 1312  
 Landes method – 258  
 Lanthanide contraction – 1361  
 Lanthanides – 1358  
 Lattice energy – 403, 602  
 Laughing gas ( $\text{N}_2\text{O}$ ) – 1069  
 Laws of radioactive disintegration – 322

Leaching – 732  
 Lead chamber process – 1153  
 Lead chromate ( $\text{PbCrO}_4$ ) – 1460  
 Lewis concept – 697  
 Lewis concept of covalent bond – 412  
 Ligands – 1286  
 Linear combination of atomic orbitals (LC AO) – 550  
 Linnett's double-quadrant (D-Q) theory – 486  
 Liquefaction – 738  
 Liquid drop model of nuclear fission – 371  
 Liquid  $\text{NH}_3$  as solvent – 713  
 Liquid  $\text{SO}_2$  as solvent – 717  
 Lithium – 847  
 Lithium aluminium hydride,  $\text{Li}[\text{AlH}_4]$  – 798  
 Lithium borohydride ( $\text{LiBH}_4$ ) – 797  
 Lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) – 851  
 Lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) – 851  
 Lithium chloride ( $\text{LiCl}$ ) – 851  
 Lithium hydride ( $\text{LiH}$ ) – 785  
 Lithopone, ( $\text{ZnS} + \text{BaSO}_4$ ) – 1501  
 Low spin octahedral complexes – 1332  
 Lunar caustic ( $\text{AgNO}_3$ ) – 1494  
 Lux-flood concept – 696

---

**M**


---

Mac-Arthur and Forrest's cyanide process – 1434, 1437  
 Mandeleef's periodic law – 151  
 Mandeleef's periodic table – 151  
 Manganese oxide ( $\text{MnO}$ ) – 1469  
 Manganese dioxide ( $\text{MnO}_2$ ) – 1470  
 Manganese heptoxide ( $\text{Mn}_2\text{O}_7$ ) – 1471  
 Manganese tetroxide ( $\text{Mn}_3\text{O}_4$ ) – 1470  
 Manganic oxide ( $\text{Mn}_2\text{O}_3$ ) – 1469  
 Marshall's acid ( $\text{H}_2\text{S}_2\text{O}_8$ ) – 1173  
 Mass defect ( $\Delta m$ ) – 363  
 Mass number ( $A$ ) – 23  
 Manganese – 1405  
 Mercuric chloride ( $\text{HgCl}_2$ ) – 1503  
 Mercuric iodide ( $\text{HgI}_2$ ) – 1504  
 Mercuric sulphide ( $\text{HgS}$ ) – 1505  
 Mercuric thiocyanate,  $\text{Hg}(\text{CNS})_2$  – 1505  
 Mercurous chloride ( $\text{Hg}_2\text{Cl}_2$ ) – 1503  
 Mercurous nitrate,  $\text{Hg}_2(\text{NO}_3)_2 \cdot 2\text{H}_2\text{O}$  – 1503  
 Mercury – 1441  
 Mercury fulminate,  $2\text{Hg}(\text{CNO})_2 \cdot \text{H}_2\text{O}$  – 1505  
 Meson theory of nuclear forces – 366  
 Metallic bond – 456  
 Metallic carbonyls – 993  
 Metallic character of elements – 288  
 Metallic crystals – 581  
 Metallic hydrides – 795  
 Metallic radius – 248  
 Metallurgy – 729  
 Metaphosphoric acid ( $\text{HPO}_3$ ) – 1114, 1118  
 Microcosmic salt [ $\text{Na}(\text{NH}_4)\text{HPO}_4 \cdot 4\text{H}_2\text{O}$ ] – 1116  
 Millikan's oil drop method – 7  
 Millon's base,  $(\text{OH})_2\text{Hg}_2\text{NH}_2(\text{OH})$  – 1505  
 Minerals – 729  
 Mitterlich's law of isomorphism – 588  
 Modern periodic table – 153  
 Mohr's salt [ $(\text{NH}_4)_2\text{SO}_4 \cdot \text{FeSO}_4 \cdot 6\text{H}_2\text{O}$ ] – 1477

Moissan's method - 1202  
 Molecular crystals - 584  
 Molecular orbital theory (MOT) - 549  
 Molecular orbitals (MOs) - 550  
 Molybdenum blue - 1465  
 Molybdenum - 1402  
 Molybdenum trioxide ( $\text{MoO}_3$ ) - 1464  
 Molybdic acid ( $\text{H}_2\text{MoO}_4 \cdot \text{H}_2\text{O}$ ) - 1464  
 Monosilane ( $\text{SiH}_4$ ) - 791  
 Monotropy - 585  
 Mosley's equation - 75  
 Mosley's law - 21  
 Mosley's modern periodic table - 152  
 Mulliken's scale - 295

---

 N
 

---

$\text{Na}_3[\text{Co}(\text{NO}_2)_6]$  - 1482  
 Nangal fertiliser,  $\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3$  - 1053  
 Negative rays - 1  
 Nerst equation - 670  
 Nescent hydrogen - 758  
 Nessler's reagent,  $\text{K}_2[\text{HgJ}_4]$  - 1506  
 Neutron - 14  
 New Jersey process - 1439  
 Ni ( $\text{dmg}$ )<sub>2</sub> - 1484  
 Nickel - 1427  
 Nickel ammonium sulphate,  $\text{NiSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$  - 1484  
 Nickel sulphate,  $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$  - 1483  
 Nickel tetracarbonyl,  $\text{Ni}(\text{CO})_4$  - 998, 1011  
 Nitrate of lime,  $\text{Ca}(\text{NO}_3)_2$  - 1055  
 Nitric acid ( $\text{HNO}_3$ ) - 1077, 1084  
 Nitric oxide ( $\text{NO}$ ) - 1070, 1073  
 Nitrides - 1099  
 Nitriding of steel - 1424  
 Nitro lime stone,  $\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3$  - 1053  
 Nitrogen dioxide ( $\text{NO}_2$ ) - 1071, 1074  
 Nitrogen pentoxide ( $\text{N}_2\text{O}_5$ ) - 1073, 1075  
 Nitrogen sesquioxide ( $\text{N}_2\text{O}_3$ ) - 1070, 1074  
 Nitrolim,  $\text{CaCN}_2$  - 1055  
 Nitrous acid ( $\text{HNO}_2$ ) - 1075, 1083  
 Nitrous oxide ( $\text{N}_2\text{O}$ ) - 1069, 1073  
 Noble gases - 195  
 Nomenclature of coordination compounds - 1293  
 Non-metallic character of elements - 288  
 Non-polar covalent bond - 302, 427  
 Non-aqueous solvents - 712  
 Normal elements - 197  
 Norwegian salt petre,  $\text{Ca}(\text{NO}_3)_2 \cdot \text{CaO}$  - 1055  
 Nuclear fission - 369  
 Nuclear fusion - 375  
 Nuclear reactor - 373  
 Nuclear transmutations - 356  
 Nucleus - 18

---

 O
 

---

Occluded hydrogen - 759  
 Octahedral site - 596  
 Octet rule - 395, 423  
 Open-hearth furnace - 743

Open-hearth process - 1420  
 Optical isomerism - 1305  
 Ore-dressing - 732  
 Ores - 729  
 Ortho hydrogen molecule - 763  
 Orthophosphoric acid ( $\text{H}_3\text{PO}_4$ ) - 1111, 1117,  
 Orthophosphorus acid ( $\text{H}_3\text{PO}_3$ ) - 1109, 1117  
 Outer orbital octahedral complexes - 1325  
 Oxidation number - 627  
 Oxidant - 631  
 Oxidising agent - 631  
 Oxygen difluoride ( $\text{OF}_2$ ) - 1222

---

 P
 

---

Para hydrogen molecule - 764  
 Parke's process - 1435  
 Passivity of iron - 1408  
 Pauli's exclusion principle - 138, 164  
 Pauling's method - 259  
 Pauling's scale (1932) - 291  
 Pentaborane - 11 ( $\text{B}_5\text{H}_{11}$ ) - 961  
 Pentaborane - 9 ( $\text{B}_5\text{H}_9$ ) - 960  
 Pentasilane ( $\text{Si}_5\text{H}_{12}$ ) - 794  
 Percarbonates - 978  
 Percarbonic acids - 978  
 Perchloric acid ( $\text{HClO}_4$ ) - 1236  
 Perdicarbonates - 979  
 Perhydrates of simple carbonates - 980  
 Periodic properties - 231  
 Permonocarbonates - 978  
 Pernitric acid ( $\text{HNO}_4$ ) - 1082, 1084  
 Peroxides - 831  
 Peroxy diphosphoric acid ( $\text{H}_4\text{P}_2\text{O}_8$ ) - 1115, 1119  
 Peroxy disulphuric acid ( $\text{H}_2\text{S}_2\text{O}_8$ ) - 1173  
 Peroxy monophosphoric acid ( $\text{H}_3\text{PO}_5$ ) - 1115, 1119  
 Peroxy monosulphuric acid ( $\text{H}_2\text{SO}_5$ ) - 1172  
 Peroxy sulphuric acids - 1172  
 Philosopher's wool ( $\text{ZnO}$ ) - 1498  
 Phosgene ( $\text{COCl}_2$ ) - 980  
 Phosphoric acid ( $\text{H}_3\text{PO}_4$ ) - 1111, 1117  
 Phosphorous acid ( $\text{H}_3\text{PO}_3$ ) - 1109, 1117  
 Phosphorous tetroxide ( $\text{P}_4\text{O}_4$ ) - 1106  
 Phosphorus pentachloride ( $\text{PCl}_5$ ) - 1120  
 Phosphorus pentoxide ( $\text{P}_2\text{O}_5$  or  $\text{P}_4\text{O}_{10}$ ) - 1106  
 Phosphorus peroxide ( $\text{PO}_3$  or  $\text{P}_2\text{O}_6$ ) - 1108  
 Phosphorus trichloride ( $\text{PCl}_3$ ) - 1119  
 Phosphorus trioxide ( $\text{P}_2\text{O}_3$  or  $\text{P}_4\text{O}_6$ ) - 1105  
 Phosphoryl trichloride ( $\text{POCl}_3$ ) - 1121  
 Photoelectric effect - 41  
 Pi ( $\pi$ ) bond - 498  
 Planck's quantum theory of radiation - 36  
 Platinic chloride ( $\text{PtCl}_4$ ) - 1484  
 Platinum - 1403  
 Plattner's chlorination process - 1437  
 Polar covalent bond - 302, 427  
 Poling - 738  
 Polyhalide ions - 1249  
 Polyhalides - 1249  
 Polymorphism - 585, 1131  
 Polythionic acid ( $\text{H}_2\text{SnO}_6$ ) - 1168  
 Portland cement - 890

Positive rays – 11  
 Postulates of Bohr's atomic model – 50  
 Potash alum  $[K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O]$  – 943  
 Potassium auricyanide,  $K[Au(CN)_2]$  – 1497  
 Potassium auricyanide,  $K[Au(CN)_4]$  – 1498  
 Potassium chromate  $(K_2CrO_4)$  – 1459  
 Potassium chromic sulphate  $[K_2SO_4 \cdot Cr_2(SO_4)_3 \cdot 24H_2O]$  – 1458  
 Potassium cobaltinitrite  $K_3[Co(NO_2)_6]$  – 1483  
 Potassium dichromate  $(K_2Cr_2O_7)$  – 1460  
 Potassium ferricyanide,  $K_3[Fe(CN)_6]$  – 1481  
 Potassium ferrocyanide,  $K_4[Fe(CN)_6]$  – 1478  
 Potassium hexanitro cobaltate (III),  $K_2[Co(NO_2)_6]$  – 1483  
 potassium hydride (KH) – 786  
 Potassium perchlorate  $(KClO_4)$  – 1237  
 Potassium permanganate  $(KMnO_4)$  – 1471  
 Potassium platinocyanide,  $K_2[Pt(CN_4) \cdot 3H_2O]$  – 1485  
 Potassium chlorate  $(KClO_3)$  – 1235  
 Probability distribution curves – 143  
 Protium – 766  
 Proton – 11  
 Proton-donor-acceptor system – 686  
 Pseudohalides – 1251  
 Pseudohalogens – 1251  
 Pyrophosphoric acid  $(H_4P_2O_7)$  – 1113, 1118  
 Pyrosulphuric acid  $(H_2S_2O_7)$  – 1165  
 Quantisation of energy – 36  
 Quantum numbers – 117  
 Quenching of steel – 1423  
 Q-value of in nuclear reaction – 367

---

**R**


---

Radioactive constant ( $\lambda$ ) – 324  
 Radioactive equilibrium – 326  
 Radioactive series – 332  
 Radioactivity – 313  
 Radium – 888  
 Radium bromide  $(RaBr_2 \cdot 2H_2O)$  – 890  
 Radium chloride  $(RaCl_2 \cdot 2H_2O)$  – 889  
 Radium sulphate  $(RaSO_4)$  – 890  
 Radius ratio rule – 596  
 Rayleigh and Ramsay first method – 1260  
 Red oxide of copper  $(Cu_2O)$  – 1488  
 Redox reactions – 630  
 Reducing agent – 631  
 Reductant – 631  
 Reduction process – 1439  
 Refining of metals – 738  
 Regeneratory furnace – 743  
 Representative elements – 197  
 Resonance – 502  
 Reverberatory furnace – 742  
 Reyleigh and Ramsay second method – 1260  
 Roasting – 733  
 Rock dating method – 385  
 Rule of half-filled or completely filled orbitals – 166  
 Rusting of iron – 1409

Rutherford's nuclear atomic model – 18  
 Rydberg's equation – 14

---

**S**


---

Salt-like hydrides – 782  
 Sanderson's scale (1955) – 296  
 Scattering of X-rays – 48  
 Schottky defect – 615  
 Schrodinger's wave equation – 104  
 Screening constant ( $\sigma$ ) – 235  
 Screening effect – 232  
 Self-linkage – 967  
 Self-reduction method – 736  
 Serpek's process – 936  
 Shielding effect – 232, 272  
 Sidgwick's concept of maximum covalency – 427  
 Sidgwick's electronic concept of coordinate bond – 1320  
 Siemens – Martin's process – 1420  
 Sigma ( $\sigma$ ) bond – 494  
 Silicates – 1024  
 Silicic acids – 1017  
 Silicon carbide (SiC) – 988  
 Silicon tetrachloride  $(SiCl_4)$  – 1018  
 Silicones – 1020  
 Silver – 1433  
 Silver nitrate  $(AgNO_3)$  – 1494  
 Silver nitride  $(Ag_3N)$  – 1494  
 Simple cubic (sc) lattice – 580  
 Sindri fertiliser,  $(NH_4)_2SO_4$  – 1051  
 Slag – 735, 1414, 1415  
 Slater's rules – 235  
 Smelting – 734  
 Sodium ammonium hydrogen phosphate,  $Na(NH_4)HPO_4 \cdot 4H_2O$  – 1116  
 Sodium auro thiosulphate,  $Na_3[Au(S_2O_3)_2]$  – 1497  
 Sodium borohydride  $(NaBH_4)$  – 798  
 Sodium cobaltinitrite  $Na_3[Co(NO_2)_6]$  – 1482  
 Sodium diuranate  $(Na_2U_2O_7 \cdot 6H_2O)$  – 1509  
 Sodium hexametaphosphate  $(NaPO_3)_6$  – 1116  
 Sodium hexanitro cobaltate (III),  
 Sodium hydride (NaH) – 785  
 Sodium orthovanadate  $(Na_3VO_4 \cdot 12H_2O)$  – 1455  
 Sodium silicate  $(Na_2SiO_3)$  – 1017  
 Sodium tetraborate  $(Na_2B_4O_7 \cdot 10H_2O)$  – 925  
 Sodium thiosulphate  $(Na_2S_2O_3 \cdot 5H_2O)$  – 1162  
 Solvation energy – 409  
 Solvent extraction – 740  
 Solvolytic reactions – 934  
 Spallation reactions – 359  
 Spectrum – 30  
 Stability of complex compounds in aqueous solution – 1311  
 Stadelers process – 1472  
 Standard electrode potential ( $E^\circ$ ) – 651  
 Standard hydrogen electrode (SHE) – 650  
 Stark effect – 81  
 Steel – 1417  
 Stellar energy – 375  
 Stereo (space) isomerism – 1299  
 Stock's method – 927

Sugden's concept of singlet linkages - 426  
 Sulphonyl chloride ( $\text{SO}_2\text{Cl}_2$ ) - 1177  
 Sulphur dioxide ( $\text{SO}_2$ ) - 1150  
 Sulphur trioxide ( $\text{SO}_3$ ) - 1150  
 Sulphuric acid ( $\text{H}_2\text{SO}_4$ ) - 1151  
 Sulphurous acid ( $\text{H}_2\text{SO}_3$ ) - 1153  
 Sulphuryl chloride ( $\text{SO}_2\text{Cl}_2$ ) 1177  
 Summerfeld's extension of Bohr's atomic model - 83  
 Superoxides ( $\text{O}_2^-$ ) - 831  
 Super-phosphate of lime,  $[\text{Ca}(\text{H}_2\text{PO}_4)_2 + 2 (\text{CaSO}_4 \cdot 2\text{H}_2\text{O})]$  - 1057

---

**T**


---

Taylor's electrical process - 981  
 Teflon - 1206  
 Tempering of steel 1423  
 Tetra silane ( $\text{Si}_4\text{H}_{10}$ ) - 794  
 Tetraborane ( $\text{B}_4\text{H}_{10}$ ) - 960  
 Tetrachloroauric acid,  $\text{H}[\text{AuCl}_4]$  - 1497  
 Tetrahedral site - 595  
 Thallium - 944  
 Thermal diffusion method - 347  
 Thionic acids - 1167  
 Thionyl chloride ( $\text{SOCl}_2$ ) - 1176  
 Thomson and Reid's experiment - 96  
 Thomson's method - 4  
 Thoria ( $\text{ThO}_2$ ) - 1507  
 Thorium - 1443  
 Thorium dioxide ( $\text{ThO}_2$ ) - 1507  
 Thorium nitrate,  $\text{Th}(\text{NO}_3)_2$  - 1508  
 Titania ( $\text{TiO}_2$ ) - 1451  
 Titanic chloride ( $\text{TiCl}_4$ ) - 1452  
 Titanic dioxide ( $\text{TiO}_2$ ) - 1451  
 Titanium - 1395  
 Titanium chloride ( $\text{TiCl}_3$ ) - 1450  
 Titanium dioxide ( $\text{TiO}_2$ ) - 1451  
 Titanium tetrachloride ( $\text{TiCl}_4$ ) - 1452  
 Titanium trichloride ( $\text{TiCl}_3$ ) - 1450  
 Transition elements - 1347  
 Transuranium elements - 380  
 Triangular (or trigonal) site - 595  
 Triiron dodecacarbonyl,  $\text{Fe}_3(\text{CO})_{12}$  - 1009  
 Trisilane ( $\text{Si}_4\text{H}_{10}$ ) - 794  
 Tritium - 766, 775  
 Triuranium octaoxide ( $\text{U}_3\text{O}_8$ ) - 1508  
 Tungsten - 1404  
 Tungsten bronzes ( $\text{M}_x\text{WO}_3$ ) - 1467  
 Tungsten halides - 1468  
 Tungsten trioxide ( $\text{WO}_3$ ) - 1466  
 Tungstic acid ( $\text{H}_2\text{WO}_4$ ) - 1467  
 Tungstic oxide ( $\text{WO}_3$ ) - 1466

---

**U**


---

Unit cell - 575  
 Uranates - 1509  
 Uranium dioxide ( $\text{UO}_2$ ) - 1508  
 Uranium - 1444  
 Uranium hexafluoride ( $\text{UF}_6$ ) - 1508  
 Uranium trioxide ( $\text{UO}_3$ ) - 1508

Urano-uranic oxide ( $\text{U}_3\text{O}_8$ ) - 1508  
 Uranyl acetate,  $\text{UO}_2(\text{CH}_3\text{COO})_2 \cdot 2\text{H}_2\text{O}$  - 1509  
 Uranyl nitrate,  $\text{UO}_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$  - 1509  
 Uranyl salts ( $\text{UO}_2^{2+}$ ) - 1509  
 Urea,  $\text{NH}_2\text{CONH}_2$  - 1057  
 Usanovich concept - 702

---

**V**


---

Valence bond theory (VBT) - 1321  
 Valence Bond Theory (VBT) of covalent bond - 492  
 Valence shell electron pair repulsion (VSEPR) theory - 488  
 Valency - 629  
 Van Arkel method - - 739, 1396  
 Van der Waals forces - 473  
 van der Waals radius - 249  
 Vanadium - 1397  
 Vanadium pentoxide ( $\text{V}_2\text{O}_5$ ) - 1453  
 Vapour phase method - 739  
 Verdigris,  $\text{Cu}(\text{CH}_3\text{COO})_2 \cdot \text{Cu}(\text{OH})_2$  - 1490  
 Vermilion ( $\text{HgS}$ ) - 1505  
 Vertical retort process - 1439

---

**W**


---

Water glass ( $\text{Na}_2\text{SiO}_3$ ) - 1017  
 Water ion system of acids and bases - 686  
 Wave mechanical model of the atom - 104  
 Werner's coordination theory - 1317  
 Wet process - 737  
 White vitriol ( $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ ) - 1500  
 Whytlaw-Grays method - 1204  
 Wilson's cloud chamber method - 320  
 Wrought iron - 1416  
 Wurtz type synthesis - 959

---

**X**


---

Xenon difluoride ( $\text{XeF}_2$ ) - 528, 1270  
 Xenon dioxy difluoride ( $\text{XeO}_2\text{F}_2$ ) - 1282  
 Xenon dioxy tetrafluoride ( $\text{Xe}_3\text{O}_2\text{F}_4$ ) - 1282  
 Xenon dioxy tetrafluoride ( $\text{XeO}_2\text{F}_4$ ) - 1282  
 Xenon dioxo difluoride ( $\text{XeO}_3\text{F}_2$ ) - 1282  
 Xenon hexafluoride ( $\text{XeF}_6$ ) - 534, 1273  
 Xenon oxydifluoride ( $\text{XeOF}_2$ ) - 1282  
 Xenon oxytetrafluoride ( $\text{XeOF}_4$ ) - 1276  
 Xenon tetrafluoride ( $\text{XeF}_4$ ) - 531, 564, 1272  
 Xenon tetraoxide ( $\text{XeO}_4$ ) - 1281  
 Xenon trioxide ( $\text{XeO}_3$ ) - 564, 1275

---

**Z**


---

Zahn's process - 981  
 Zeeman effect - 81  
 Zinc - 1439  
 Zinc carbonate ( $\text{ZnCO}_3$ ) - 1501  
 Zinc chloride ( $\text{ZnCl}_2$ ) - 1499  
 Zinc oxide ( $\text{ZnO}$ ) - 1498  
 Zinc sulphate ( $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ ) - 1500  
 Zinc sulphide ( $\text{ZnS}$ ) - 1500  
 Zone refining method - 739