

2.5. ENLACE COVALENTE COORDINADO

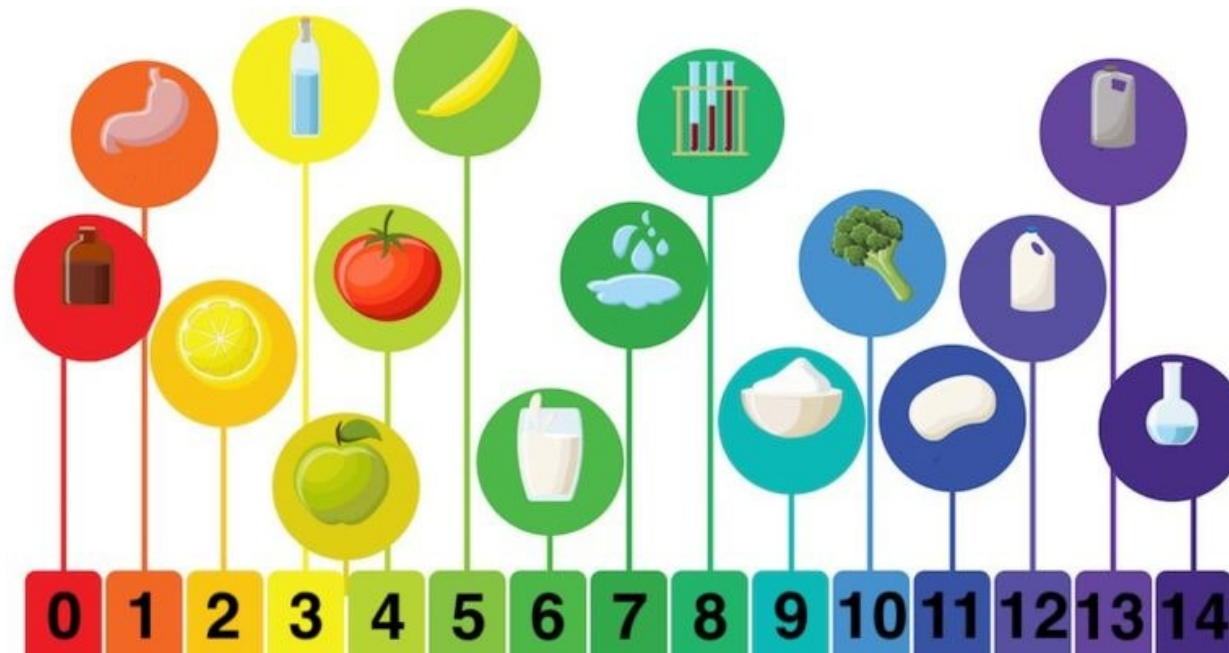
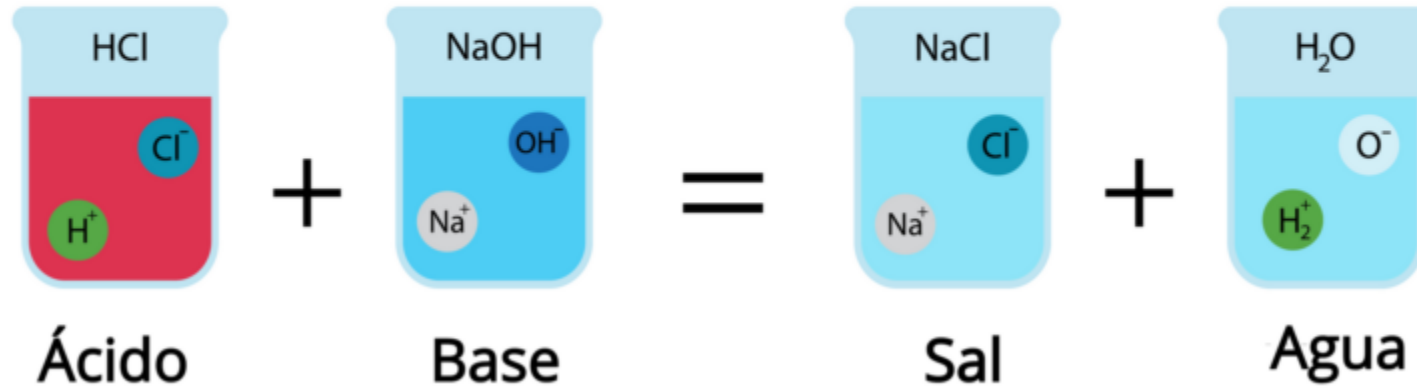
QUÍMICA INORGÁNICA I

PROF. PAULINO GUILLERMO ZERÓN ESPINOSA

Ácidos y Bases

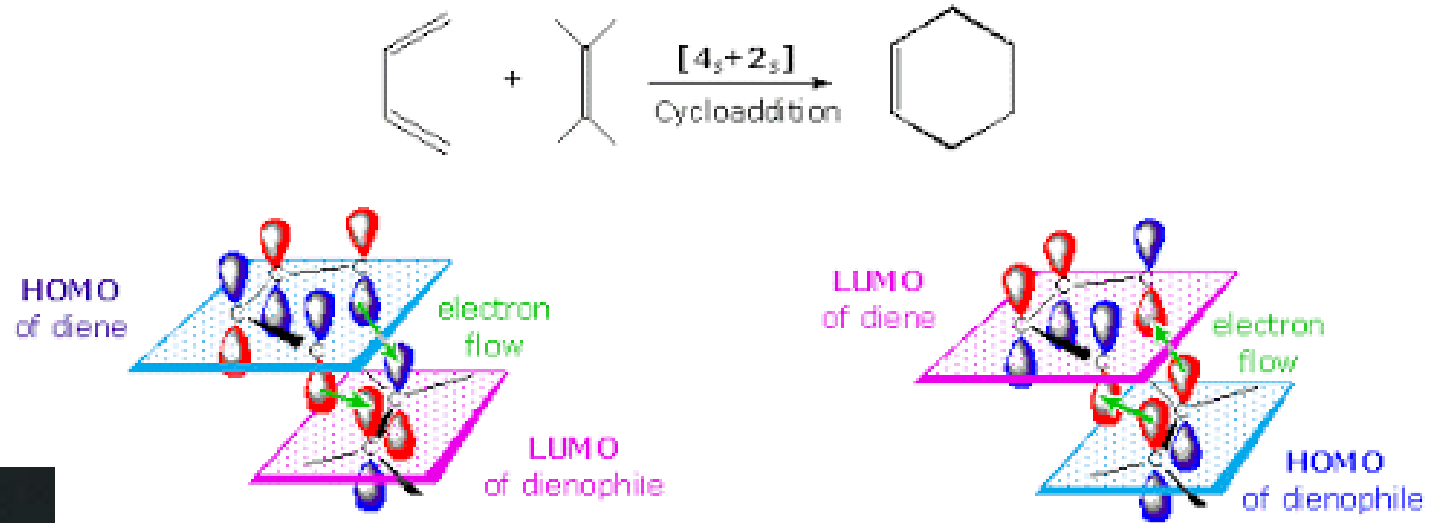
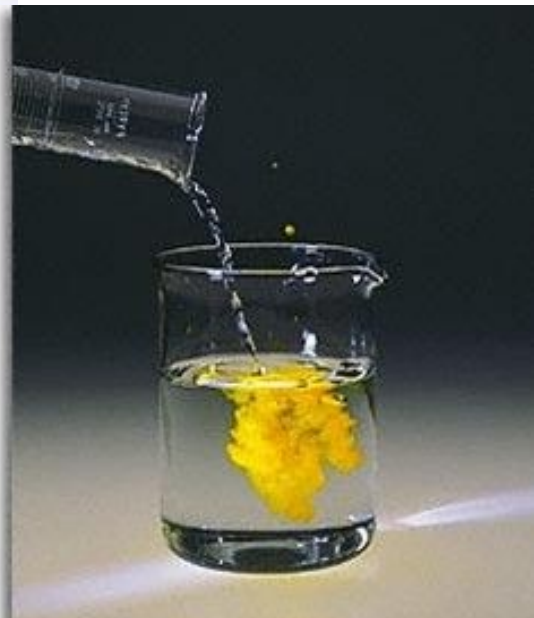
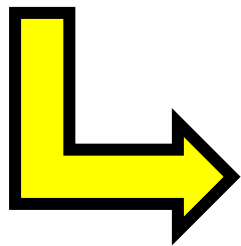
Clasificación

Reacción entre ácidos y bases



Ácidos y bases

- La teoría puede describir desde las reacciones en agua hasta reactividad



Teoría Ácido-Base



Los ácidos son especies que liberan protones (H^+)

HCl

H_2SO_4

HI

H_2S

H_3PO_4

Las bases son especies que liberan (OH^-)

NaOH

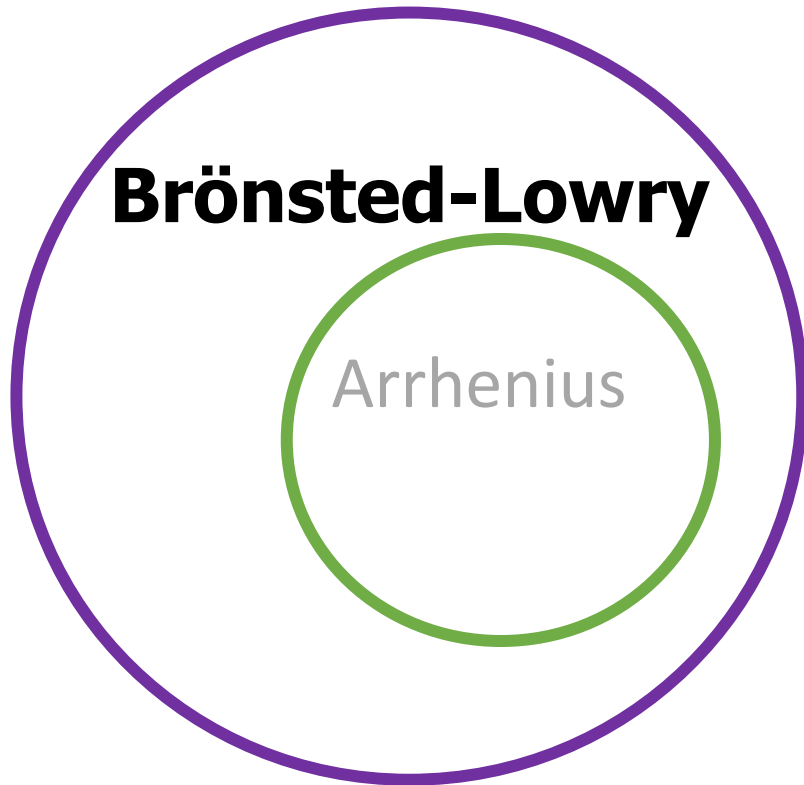
$Ca(OH)_2$

$Mg(OH)_2$

$Al(OH)_3$

KOH

Teoría Ácido-Base



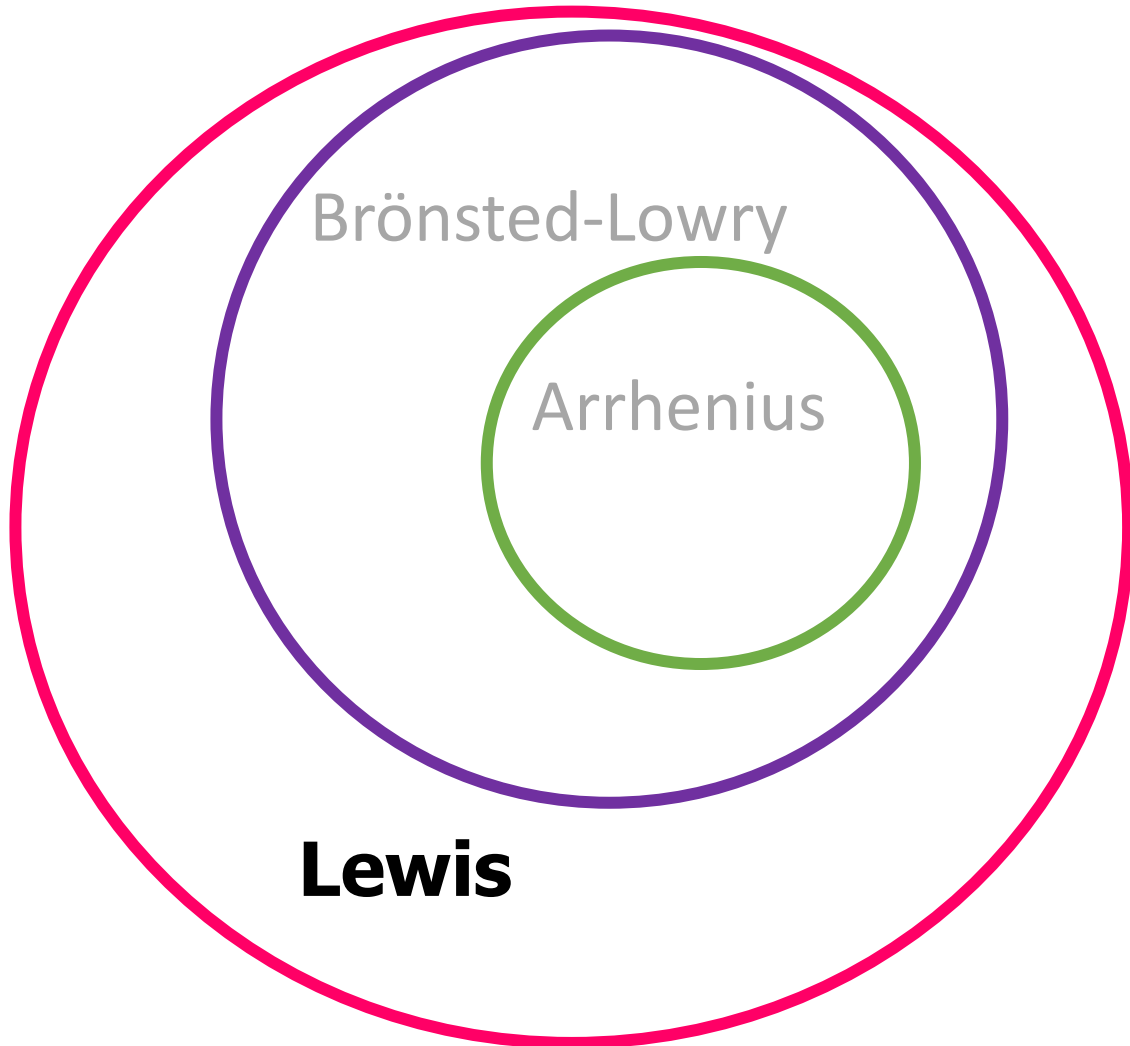
Los ácidos son especies que ceden protones (H^+)

HCl
 H_2SO_4
HI
 CH_3COOH
 H_3PO_4

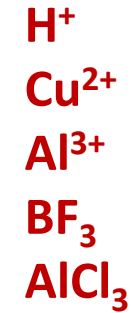
Las bases son especies que aceptan protones

OH^-
 NH_3
 Cl^-
 H_2O
Fenolato

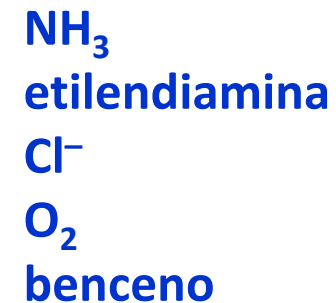
Teoría Ácido-Base



Los ácidos son especies que aceptan electrones

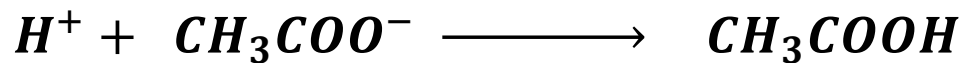


Las bases son especies que donan electrones





Aducto



Compuestos
Covalentes

Ácido de
Lewis

A

+

Base de
Lewis

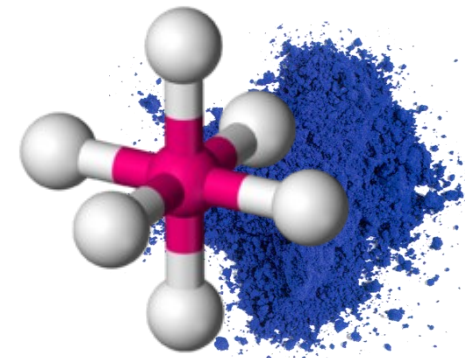
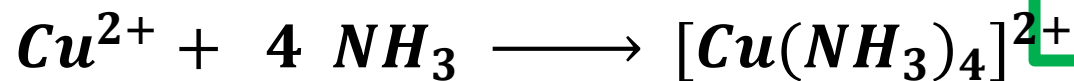
:B

Na

Enlace Covalente
Coordinado

Aducto

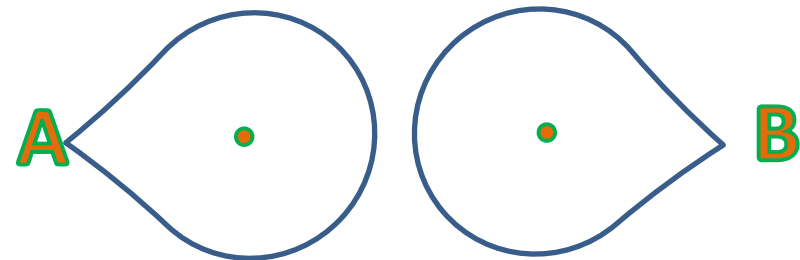
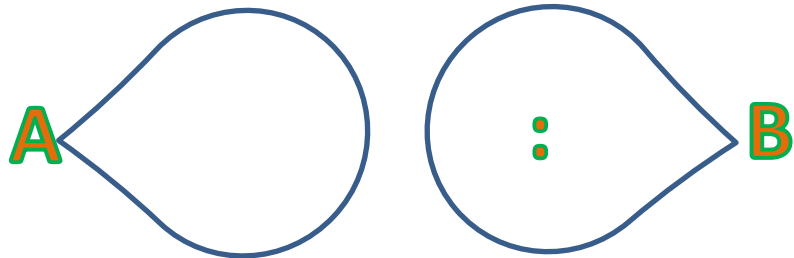
Electrones
Prestados



**Compuestos
covalentes
coordinados**

VS

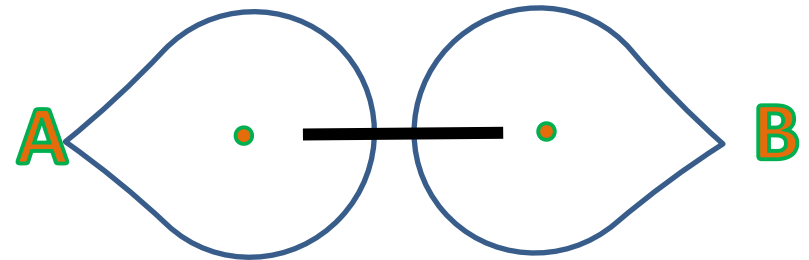
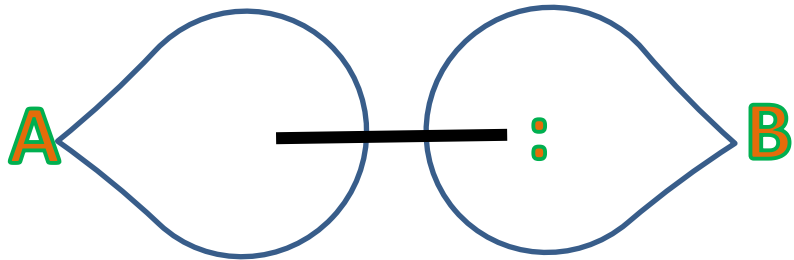
**Compuestos
covalentes**



Compuestos covalentes coordinados

VS

Compuestos covalentes



**Compuestos
covalentes
coordinados**

VS

**Compuestos
covalentes**



Ácidos de Lewis

1 IA	New Original	Alcalinos	Actínidos	Solid																18 VIIIA										
1	H 1.0078	21 Sc 44.955910	22 Ti 47.867	23 V 50.9415	24 Cr 51.9961	25 Mn 54.938049	26 Fe 55.8457	27 Co 58.933200	28 Ni 58.6934	29 Cu 63.546	30 Zn 65.409	39 Y 88.90585	40 Zr 91.224	41 Nb 92.90638	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 102.90550	46 Pd 106.42	47 Ag 107.8682	48 Cd 112.411	72 Hf 178.49	73 Ta 180.9479	74 W 183.84	75 Re 186.207	76 Os 190.23	77 Ir 192.217	78 Pt 195.078	79 Au 196.96655	80 Hg 200.59
2	Li 6.941	Escandio	Titanio	Vanadio	Cromo	Manganeso	Hierro	Cobalto	Níquel	Cobre	Zinc	Itrio	Circonio	Niobio	Molibdeno	Tecnecio	Rutenio	Rodio	Paladio	Plata	Cadmio	Hafnio	Tántalo	Wolframio	Renio	Osmio	Iridio	Platino	Oro	Mercurio
3	Na 22.989	39	40	41	42	43	44	45	46	47	48	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
4	K 39.098	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	Rb	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106
5	Rb 85.468	57 to 71	72	73	74	75	76	77	78	79	80	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
6	Cs 132.905	57 to 71	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
7	Fr (223)	57 to 71	72	73	74	75	76	77	78	79	80	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105

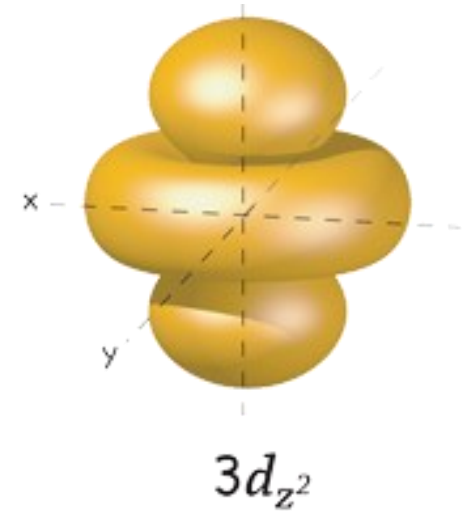
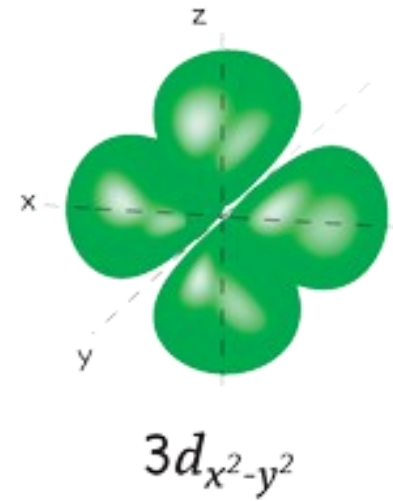
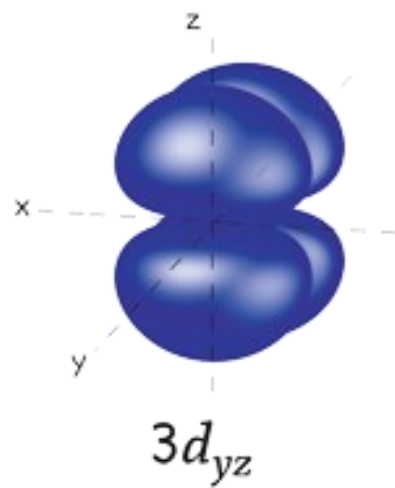
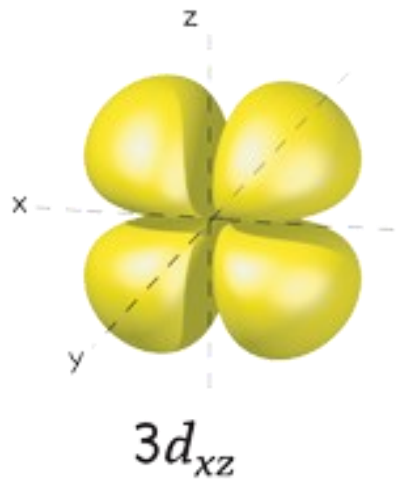
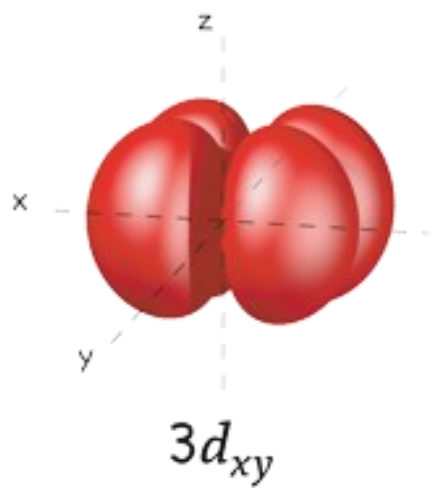
Atomic masses in parentheses are those of the most stable or common isotope.

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Note: The subgroup numbers 1-18 were adopted in 1984 by the International Union of Pure and Applied Chemistry. The names of elements 112-118 are the Latin equivalents of those numbers.

57 La Lantano 138.9055	58 Ce Cerio 140.116	59 Pr Praseodimio 140.90765	60 Nd Neodimio 144.24	61 Pm Prometio (145)	62 Sm Samario 150.36	63 Eu Europio 151.964	64 Gd Gadolinio 157.25	65 Tb Terbio 158.92534	66 Dy Disprosio 162.500	67 Ho Holmio 164.93032	68 Er Erbio 167.259	69 Tm Tulio 168.93421	70 Yb Iterbio 173.04	71 Lu Lutecio 174.967
89 Ac Actinio (227)	90 Th Torio 232.0381	91 Pa Protactinio 231.03688	92 U Uranio 238.02891	93 Np Neptunio (237)	94 Pu Plutonio (244)	95 Am Americio (243)	96 Cm Curio (247)	97 Bk Berkelio (247)	98 Cf Californio (251)	99 Es Einstenio (252)	100 Fm Fermio (257)	101 Md Mendelevio (258)	102 No Nobelio (259)	103 Lr Lawrencio (262)

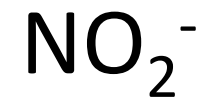
¿Por qué metales de transición?



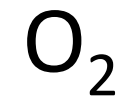
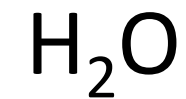
Bases de Lewis | Ligantes

Inorgánicos

Cargados

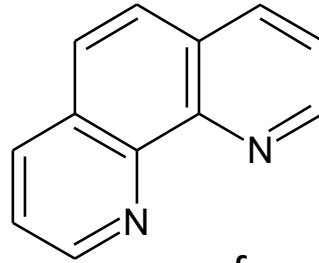


Neutros

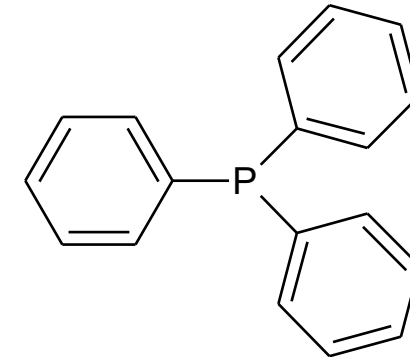


Bases de Lewis | Ligantes

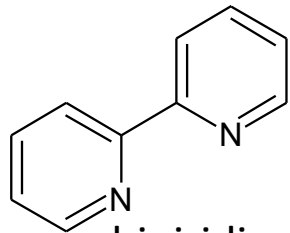
Orgánicos



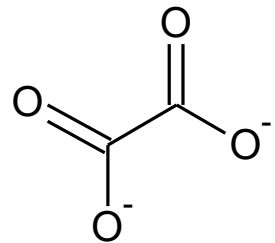
fenantrolina



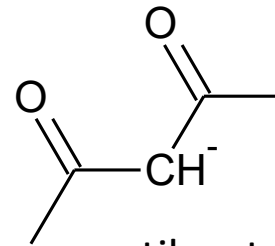
trifenilfosfina



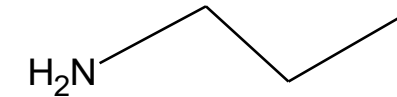
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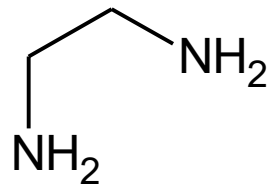
oxalato



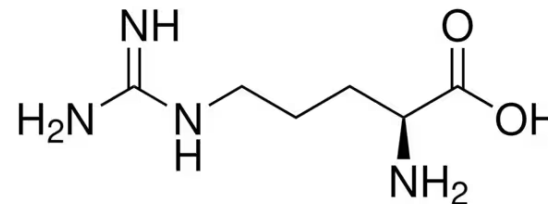
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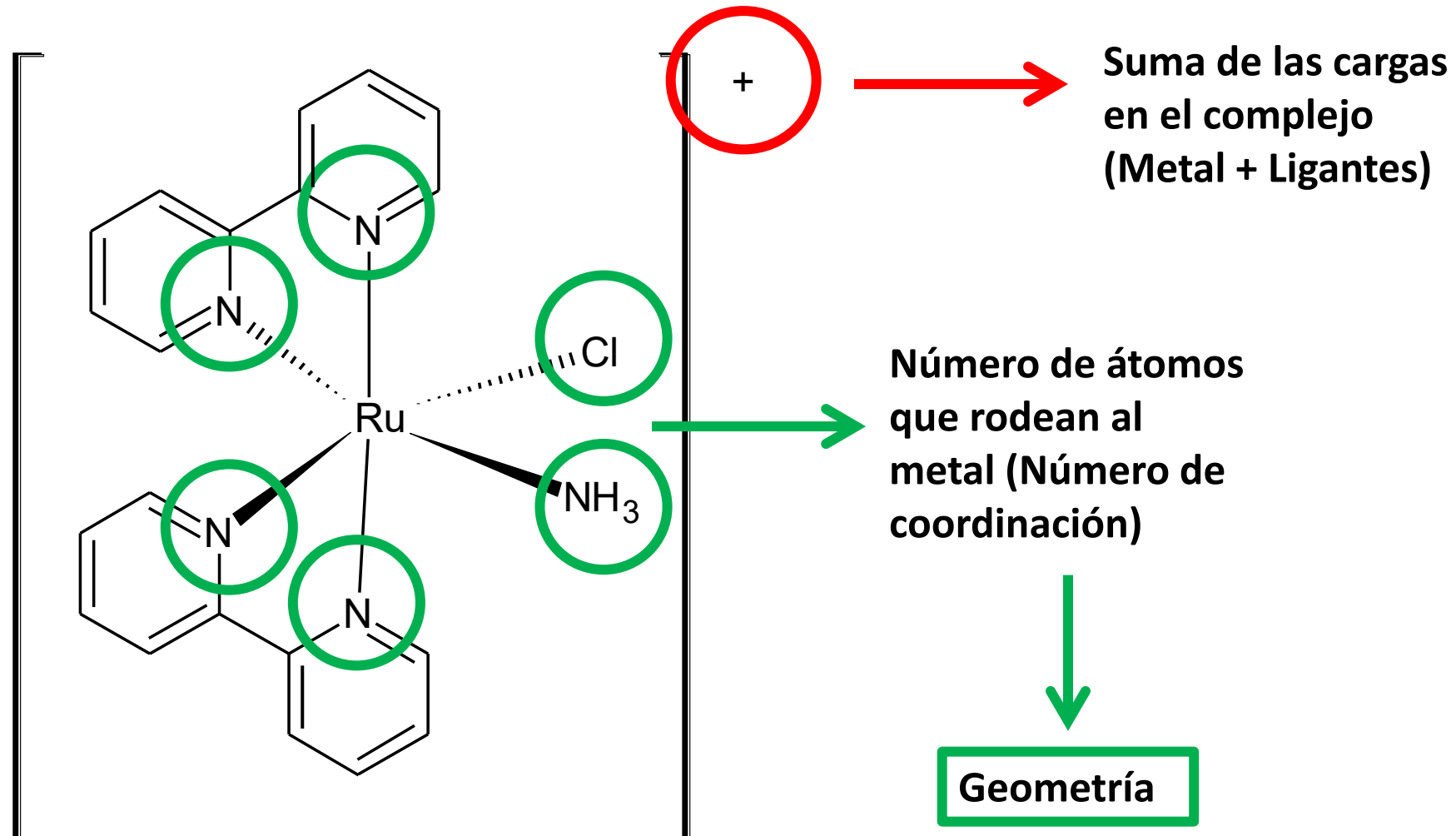


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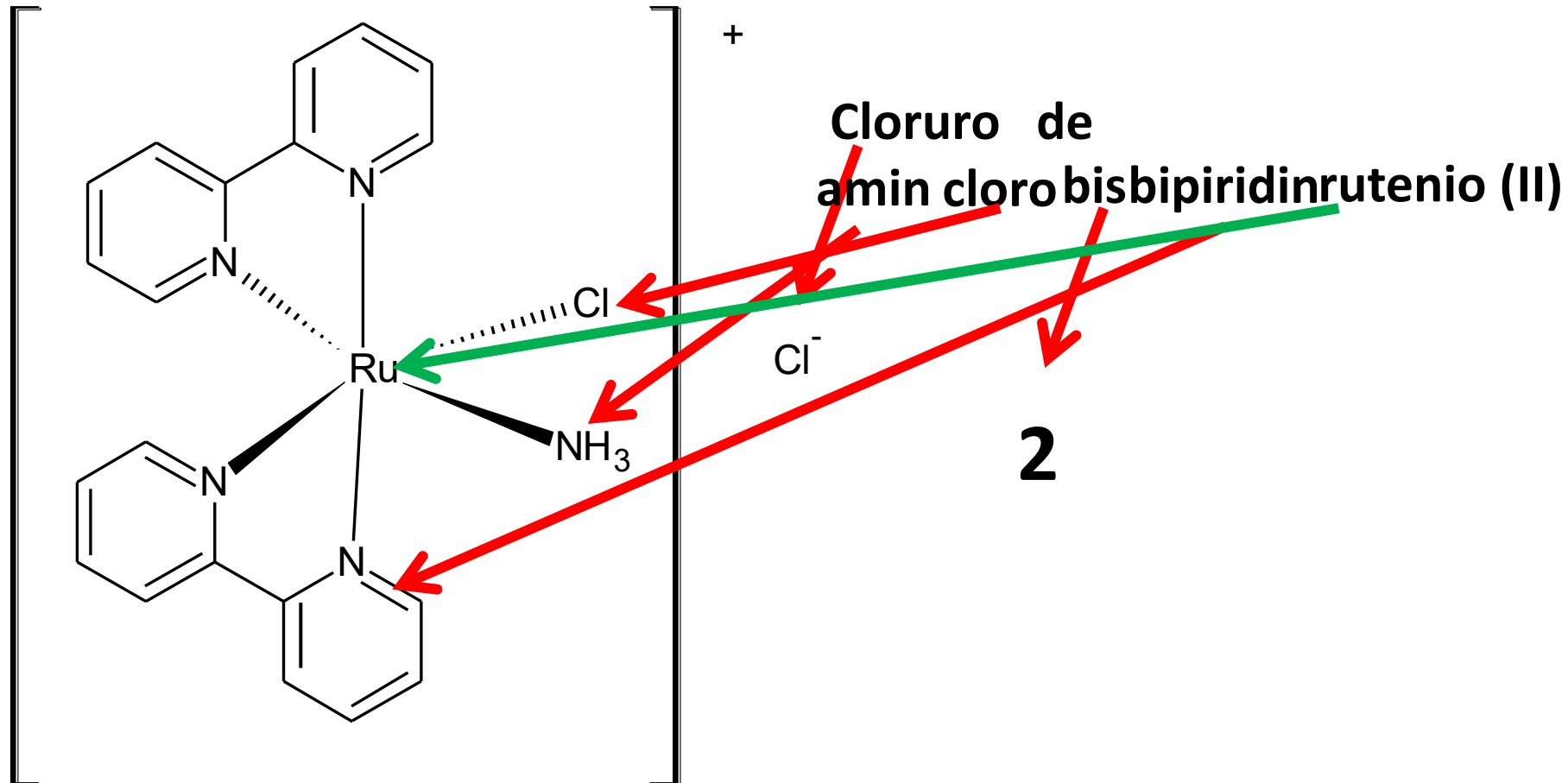


arginina

Compuestos de Coordinación

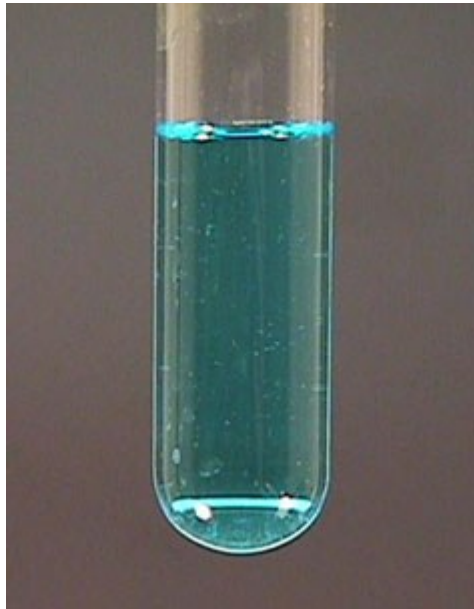


Nomenclatura de compuestos de coordinación

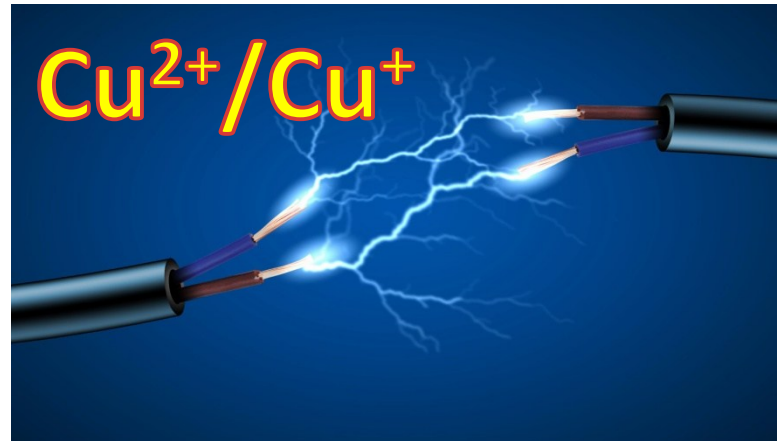


Características

Color

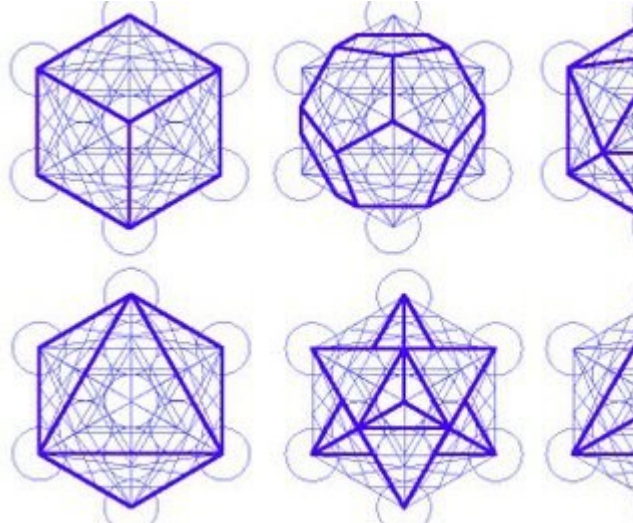


REDOX

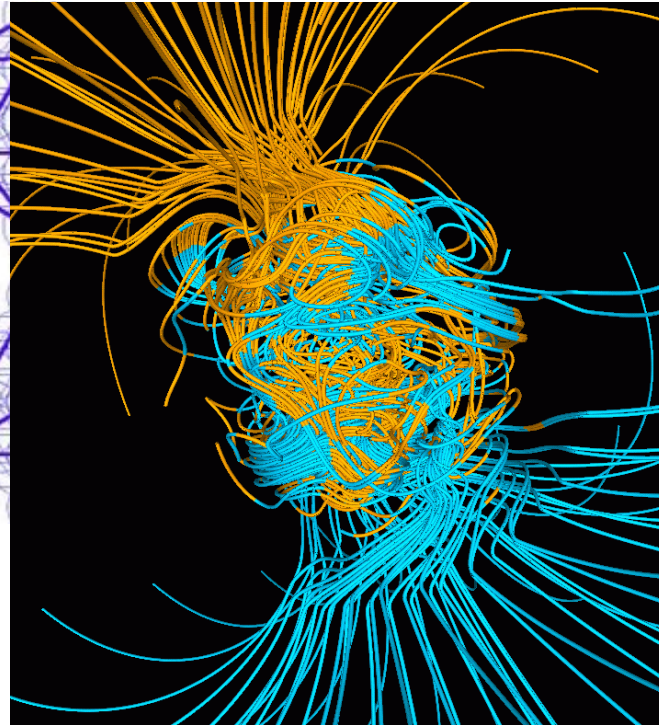


Características

Geometría

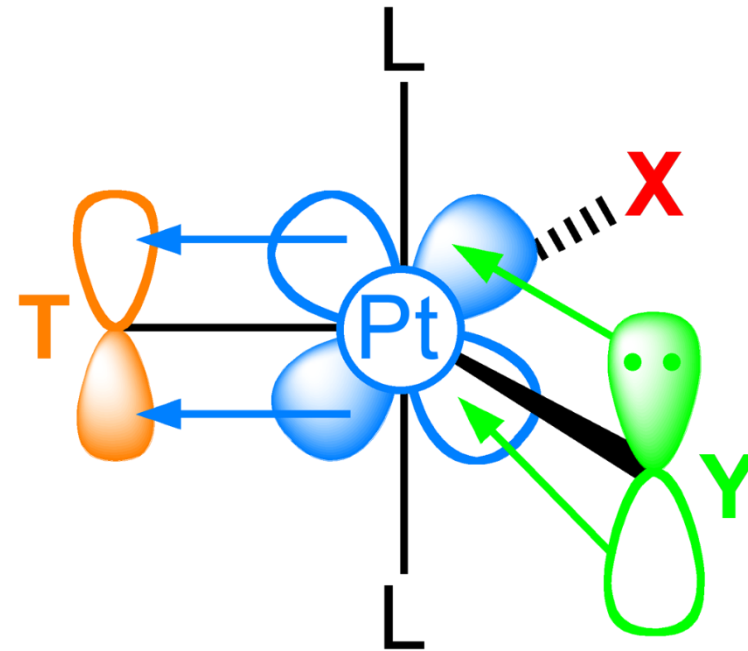
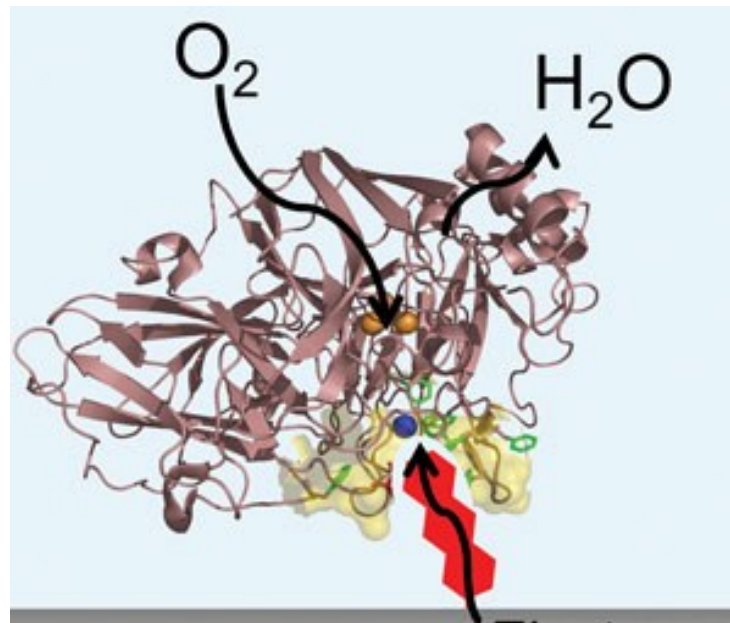


Paramagnetismo



Características

Reactividad



Geometrías más comunes

Número de Coordinación	Geometrías
4	Cuadrado, Tetraedro
5	Bipirámide trigonal, Pirámide de base cuadrada
6	Octaedro