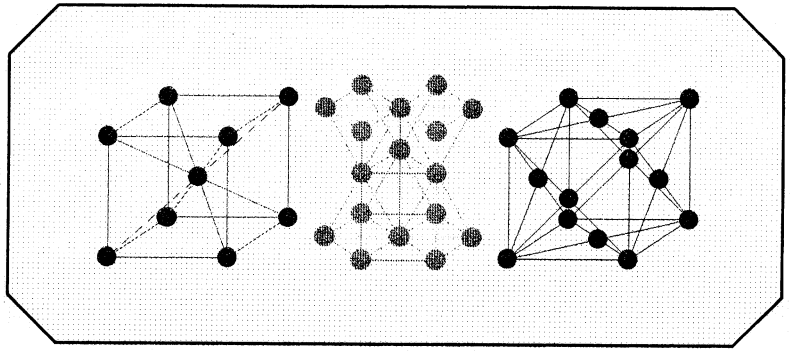


MODELES MOLECULAIRES

Collection Chimie Organique et Minérale
Coffret de base Chimie Organique

Représentation compacte à l'échelle 1,5 cm/Å
Représentation éclatée à l'échelle 5 cm/Å

92 Atomes - Référence MT 150

H	C	N	F	S	Cl	Br	I	M B, Si, Fe, Co, Ni, Cu
—H 9	—H 9	—H 9	—H 9	—O 4	—O 4			
—Cl 2	—Cl 2	—Cl 2	Liaisons éclatées simples Gr 2 + Liaisons multiples 48 + 16 = 64 Liaisons éclatées Gr 2 souples 4					
≡N —Br 1 1	=C< –C–		Extracteur des raccords compacts 1 8 18					
≡C– =O 2 2	—F —I 1 1	–N –N– 2 2	RACCORDS COMPACTS 120	=N< 4	Liaisons éclatées simples Gr 1 Liaisons éclatées simples Gr 2 tournantes 40 6			

Elément	Couleur	Nb	Type	Géométrie	Fonction
Hydrogène H1 1 face	blanc	36	-	Monovalent —H	Entre dans tous les composés organiques et certains composés minéraux:HCl,NaOH,HNO3...
Carbone C4 4 faces	noir	18	sp3	Tétraédrique 4 liaisons à 109°28' >C<	Carbone saturé tétravalent: 4 liaisons simples. Propre aux alcanes, cyclanes... Centre asymétrique.
Carbone C3 3 faces	noir	8	sp2	Plane 3 liaisons à 120° >C=	Insaturé trivalent: 2 liaisons simples 1 double: >C=C<; >C=N<; >C=O. 3 liai.simples cas du benzène délocal.liai.π
Carbone C2 2 faces	noir	2	sp	Linéaire 2 liaisons à 180° —C≡	Insaturé divalent: 1 liaison simple et 1 triple:-C≡C-,-C≡N ou 2 liaisons doubles dans l'allène: >C=C=C< et CO2: O=C=O
Azote N3 & N4 4 faces 3 faces	bleu	2 2	sp3	Tétraédrique 4 liaisons à 109°: >N< NH4 107°: >N< NH3	Tétravalent: 4 liaisons simp. pour ion ammonium, amines polaires. Saturé trival.3 liai. simples pour ammoniac, amines
Azote N3' 3 faces	bleu	4	sp2	Plane 3 liaisons à 120° >N= ou >N-	Saturé trivalent: 3 liaisons simples: >N-C<. Insaturé divalent: 1 liaison simple et 1 liaison double: >C=N<
N1 1 face	bleu	1		N ≡	monovalent: 1 liaison triple Nitriles
Oxygène O2 2 faces	rouge	8	sp3	Plane 2 liaisons à 109°:-O-H,-O- 105°: O< H2O	Saturé divalent: 2 liaisons simples pour alcools, éthers, esters, oses, acides, H2O...
Oxygène O1 1 face	rouge	2	sp ou sp2	=O	Insaturé monovalent:1 liaison double: O=C<: acides, cétones aldéhydes...
Fluor:	bleu clair	1	-	-F	Monovalent: Fluorures.
Chlore	vert	6		-Cl	Monovalent: Chlorures.
Brome	marron	1		-Br	Monovalent: Bromures
Iode	violet	1			Monovalent: Iodures

Liaisons éclatées simples (σ)	40	Liaison standard: H—C,H—N,H—O,H—Cl,H-F (Lg≈52mm)
	48	Liaison standard: C—C,C—N,C—O,C—Cl,C-F (Lg≈70mm)
	4	Liaison souple pour cycles tendus (Lg≈70mm blanc
	6	Liaison tournante cyclohexane, glucose (Lg≈70mm)
Liaisons éclatées multiples	16	Pour liaison double ou triple standard (Lg≈70mm) 2 pour >C=C< ; 2 + une liaison simple pour -C≡C-
Raccords	120	Toutes les liaisons pour montage compact Lg≈16mm
Extracteur	1	Pour extraire toutes les liaisons sauf multiples

Les principales fonctions de la chimie organique

Méthane

Pentane

Amine

Composés cycliques

Éthylène

Butadiène

Acétylène $H-C \equiv C-H$

Alcool

Glycérol

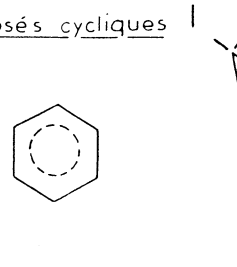
Ether-oxyde

Acide

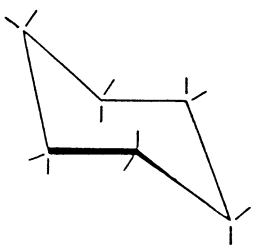
Aldéhyde

Cétone

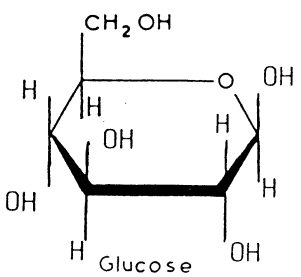
Urée



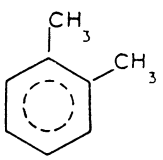
Benzène



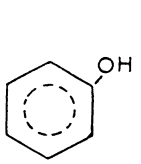
Cyclohexane



Glucose

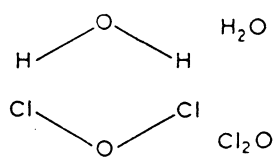


Xylène



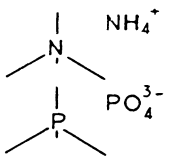
Phénol

Éléments de chimie minérale



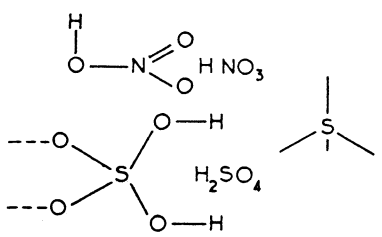
H_2O

Cl_2O



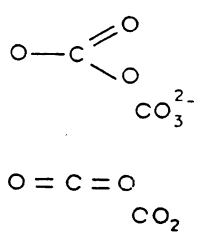
NH_4^+

PO_4^{3-}



HNO_3

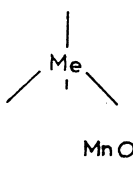
H_2SO_4



CO_3^{2-}

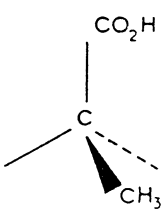
$O=C=O$

CO_2

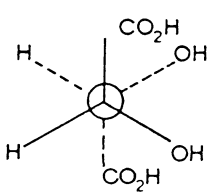


MnO_4^-

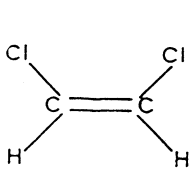
L'isomérie



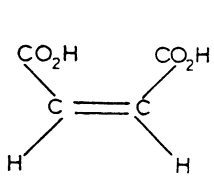
Ac. lactique



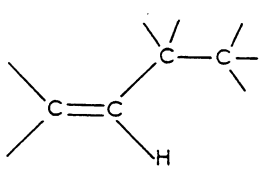
Ac. tartriques



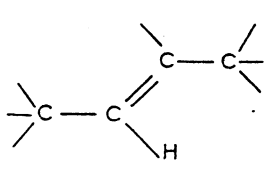
Dichloro 1-2 éthylène



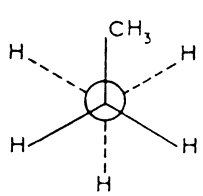
Ac. maléique



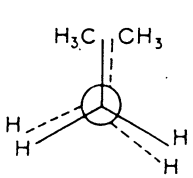
Butène 1

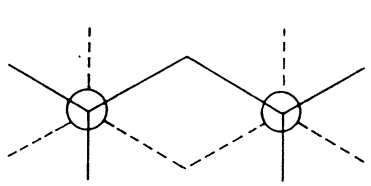


Butène 2

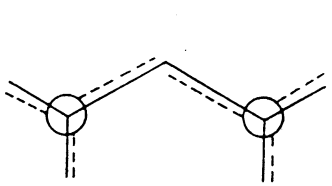


Butane



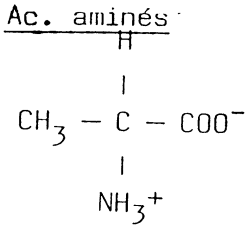


Cyclohexane chaise

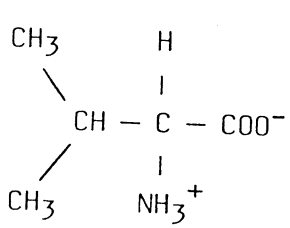


Cyclohexane Bateau

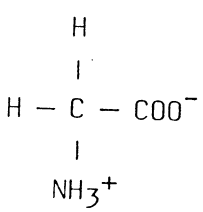
Ac. aminés



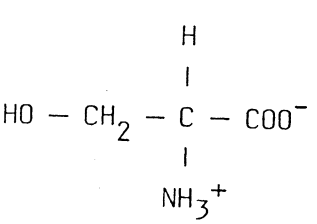
Alanine



Valine

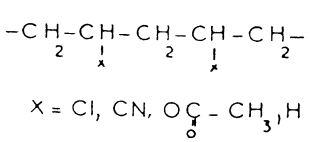


Glycocolle

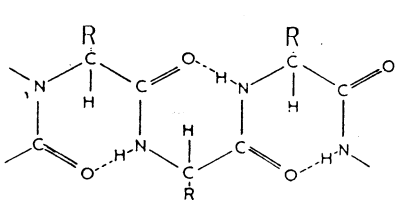


Sérine

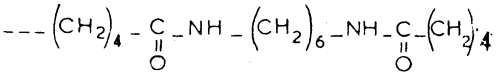
Polymérisation



X = Cl, CN, $O\overset{O}{\overset{\|}{C}}-CH_3$, H



chaine peptidique



nylon