

TABELLA 3.1 Struttura di alcuni comuni gruppi funzionali



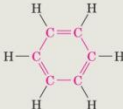



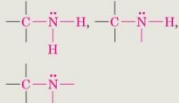





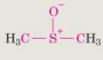
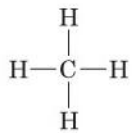
Nome della famiglia	Struttura del gruppo funzionale*	Esempi semplici	Desinenza del nome
Alcano	(Contiene solo legami singoli C—H e C—C)	CH_3CH_3	-ano Etano
Alchene		$\text{H}_2\text{C}=\text{CH}_2$	-ene Etene (Etilene)
Alchino	$-\text{C}\equiv\text{C}-$	$\text{H}-\text{C}\equiv\text{C}-\text{H}$	-ino Etino (Acetilene)
Arene			nessuna Benzene
Alogenuro	 (X = F, Cl, Br, I)	$\text{H}_3\text{C}-\text{Cl}$	nessuna Clorometano
Alcol		$\text{H}_3\text{C}-\text{O}-\text{H}$	-olo Metanolo
Etere		$\text{H}_3\text{C}-\text{O}-\text{CH}_3$	-etere Dimetiletere
Ammina		$\text{H}_3\text{C}-\text{NH}_2$	-ammina Metilammina
Nitrile		$\text{H}_3\text{C}-\text{C}\equiv\text{N}$	-nitrile Etanonitrile (Acetonitrile)
Nitro			nessuna Nitrometano
Solfuro		$\text{H}_3\text{C}-\text{S}-\text{CH}_3$	-solfuro Dimetilsolfuro
Solfossido			-solfossido Dimetilsolfossido

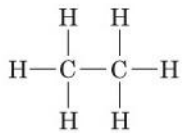
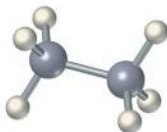
TABELLA 3.1 (continuazione)

Nome della famiglia	Struttura del gruppo funzionale*	Esempi semplici	Desinenza del nome
Solfone	$\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \\ \text{---C---S}^{\oplus 2}\text{---C---} \\ \\ \text{:}\ddot{\text{O}}\text{:} \end{array}$	$\begin{array}{c} \text{O}^- \\ \\ \text{H}_3\text{C---S}^{\oplus 2}\text{---CH}_3 \\ \\ \text{O}^- \end{array}$	<i>solfone</i> Dimetilsolfone
Tiolo	$\begin{array}{c} \\ \text{---C---}\ddot{\text{S}}\text{---H} \\ \end{array}$	$\text{H}_3\text{C---SH}$	<i>-tiolo</i> Metantiolo
Carbonile,	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---} \end{array}$		
Aldeide	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---H} \\ \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---H} \end{array}$	<i>-ale</i> Etanale (Acetaldeide)
Chetone	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---C---} \\ \quad \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---CH}_3 \end{array}$	<i>-one</i> Propanone (Acetone)
Acido carbossilico	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---}\ddot{\text{O}}\text{H} \\ \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---OH} \end{array}$	<i>Acido -oico</i> Acido etanoico (Acido acetico)
Estere	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---}\ddot{\text{O}}\text{---C---} \\ \quad \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---O---CH}_3 \end{array}$	<i>-oato</i> Metil etanoato (Metil acetato)
Ammide	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---}\ddot{\text{N}}\text{H}_2 \\ \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---NH}_2 \end{array}$	<i>-ammide</i> Etanammide (Acetammide)
	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---}\ddot{\text{N}}\text{---H} \\ \end{array}$		
	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---}\ddot{\text{N}}\text{---} \\ \end{array}$		
Cloruro di un acido carbossilico	$\begin{array}{c} \text{:}\text{O}\text{:} \\ \\ \text{---C---C---Cl} \\ \end{array}$	$\begin{array}{c} \text{O} \\ \\ \text{H}_3\text{C---C---Cl} \end{array}$	<i>-oile cloruro</i> Etanoile cloruro (Acetile cloruro)
Anidride di un acido carbossilico	$\begin{array}{c} \text{:}\text{O}\text{:} \quad \text{:}\text{O}\text{:} \\ \quad \\ \text{---C---}\ddot{\text{O}}\text{---C---C---} \\ \quad \end{array}$	$\begin{array}{c} \text{O} \quad \text{O} \\ \quad \\ \text{H}_3\text{C---C---O---C---CH}_3 \end{array}$	<i>anidride -oica</i> Anidride etanoica (Anidride acetica)

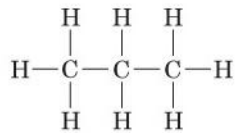
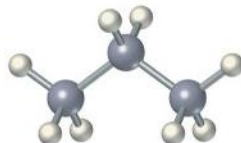
*I legami le cui connessioni non sono specificate si suppongono attaccati ad atomi di carbonio o di idrogeno nella restante parte della molecola.



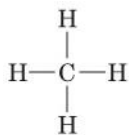
Metano, CH₄



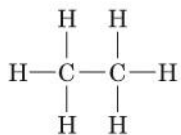
Etano, C₂H₆



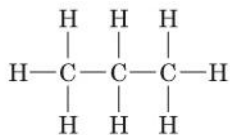
Propano, C₃H₈



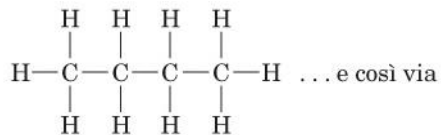
Metano



Etano

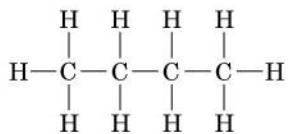


Propano

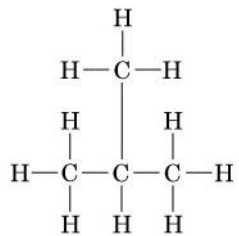


Butano

C_4H_{10}

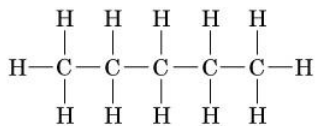
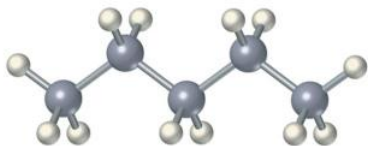


Butano

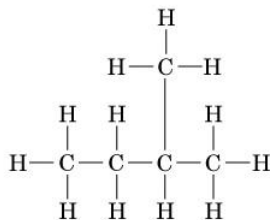
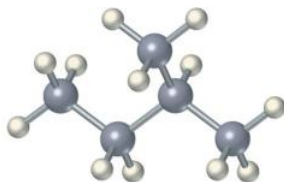


**Isobutano
(2-Metilpropano)**

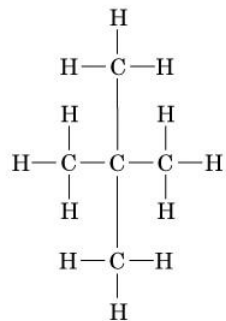
C_5H_{12}



Pentano

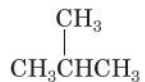


2-Metilbutano



2,2-Dimetilpropano

**Scheletro carbonioso
diverso**
 C_4H_{10}



**2-Metilpropano
(Isobutano)**

e



Butano

**Gruppi funzionali
diversi**
 C_2H_6O



Alcol etilico

e



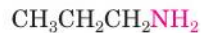
Dimetil etere

**Posizione diversa
dei gruppi funzionali**
 C_3H_9N



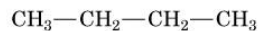
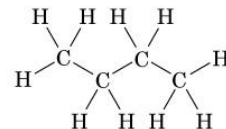
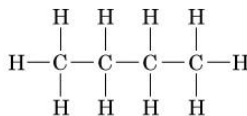
Isopropilammina

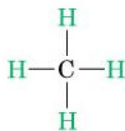
e



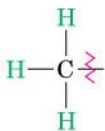
Propilammina

FIGURA 3.2 Ecco come può essere rappresentata la formula del butano, C_4H_{10} . La molecola è sempre la stessa, anche se la struttura è disegnata in modi diversi: essa deve solo contenere una catena lineare di quattro atomi di carbonio, senza che sia necessario rispettare una forma geometrica specifica.

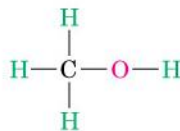




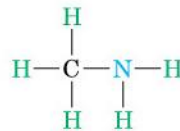
Metano



Gruppo metilico

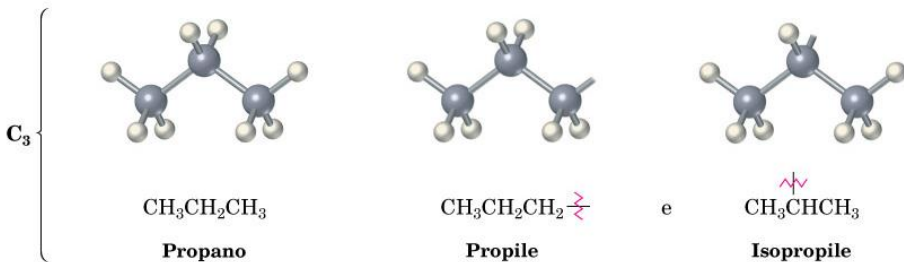


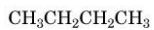
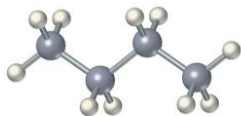
**Alcol metilico
(Metanolo)**



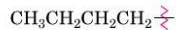
Metilammina

FIGURA 3.3
Gruppi alchilici
derivati da alcani
a catena lineare.

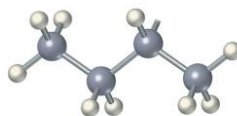




Butano

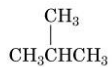


Butile

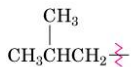


sec-Butile

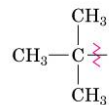
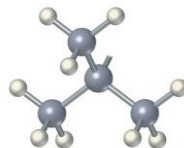
C₄



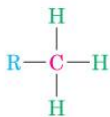
Isobutano



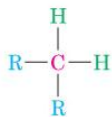
Isobutile



tert-Butile



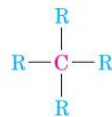
Il carbonio *primario* (1°)
è legato ad un altro
atomo di carbonio



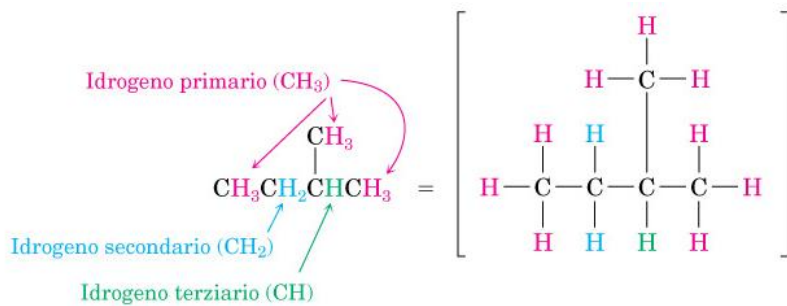
Il carbonio *secondario* (2°)
è legato ad altri due
atomi di carbonio



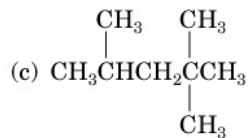
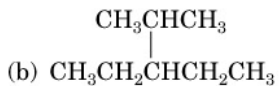
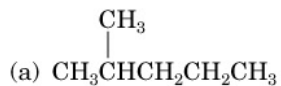
Il carbonio *terziario* (3°)
è legato ad altri tre
atomi di carbonio



Il carbonio *quaternario* (4°)
è legato ad altri quattro
atomi di carbonio



Esercizio: Dire quali atomi di C e di H sono primari, secondari, etc.



Prefisso—Radice—Desinenza

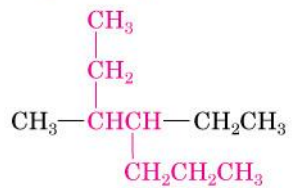
↗
Dove si trovano
i sostituenti?

↑
Quanti sono
gli atomi
di carbonio?

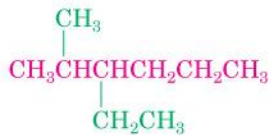
↖
Di quale famiglia
si tratta?



Denominato come un **esano** sostituito

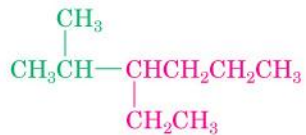


Denominato come un **eptano** sostituito

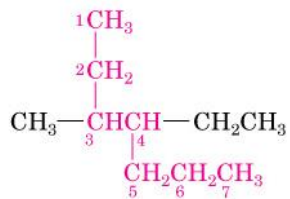


Denominato come un esano
con *due* sostituenti

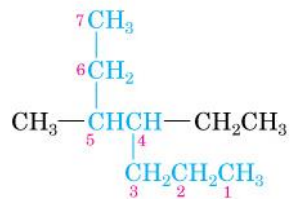
NON

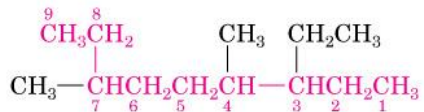


Come un esano con
un sostituente

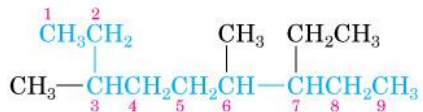


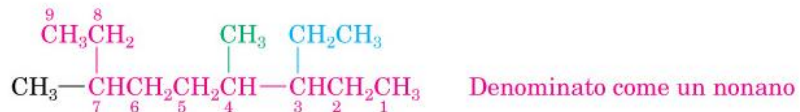
NON





NON





Sostituenti:

- Su C3, CH_2CH_3 (3-etil)
- Su C4, CH_3 (4-metil)
- Su C7, CH_3 (7-metil)



Sostituenti:

- Su C2, CH₃ (2-metil)
- Su C4, CH₃ (4-metil)
- Su C4, CH₂CH₃ (4-etil)



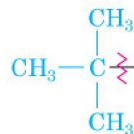
Isopropile (*i*-Pr)



***sec*-Butile
(*sec*-Bu)**



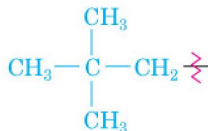
Isobutile



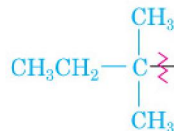
***tert*-Butile
(*t*-Butile o *t*-Bu)**



**Isopentile detto anche
isoamile (*i*-amile)**



Neopentile

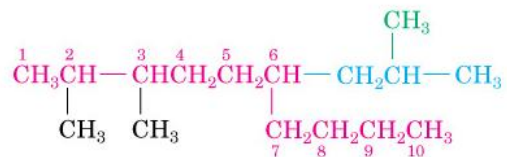


***tert*-Pentile, detto anche
tert-amile (*t*-amile)**

Es. di ramificazione complessa in posizione 6:

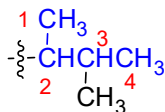
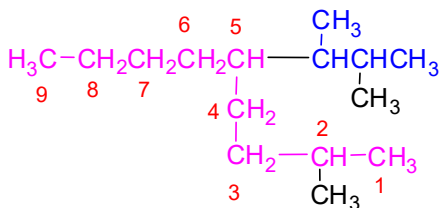
2,3-Dimetil-6-(2-metilpropil)decano

N.B. 2-metilpropil=isobutile



2,3-Dimetil-6-(2-metilpropil)decano

Es. di ramificazione complessa in posizione 5:
 5-(3-metilbutan-2-il)-2-metilnonano



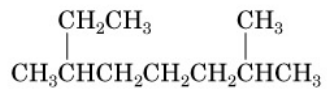
5-(3-metilbutan-2-il)-

5-(3-metilbutan-2-il)-2-metilnonano

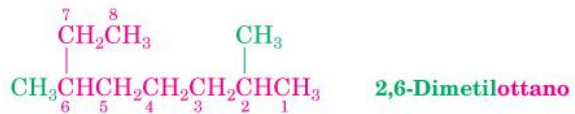


4-(1-Metiletil)eptano • 4-Isopropileptano

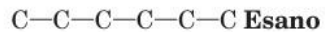
Esercizio: individuare il nome della seguente molecola

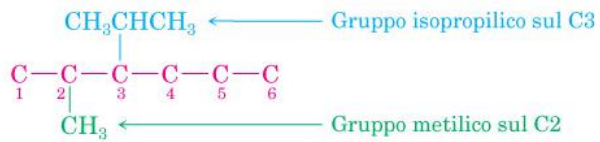


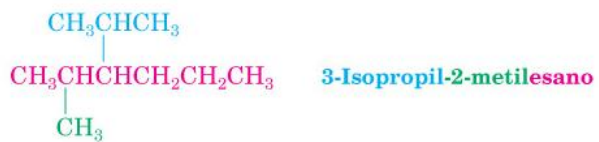
Soluzione: 2,6-Dimetilottano



Esercizio: Scrivere il 3-isopropil-2-metilesano







(a) I tre isomeri di C_5H_{12}

