CHIMICA ORGANICA → chimica dei composti del CARBONIO che rappresentano il 90% dei composti chimici

Tutti gli esseri viventi sono a base carbonica, perché il carbonio
- forma legami covalenti forti
- tende a formare POLIMERI e quindi MACROMOLECOLE molto VARIEGATE, che giustificano la struttura complessa degli esseri viventi.

Il SILICIO, che si trova sotto di lui, pur essendo vicino al carbonio, non è favorevole nella vita, perché costituisce molecole non variegate.

SUL CARBONIO SI FONDA LA VITA.

IDROCARBURI → composti organici più semplici, costituiti esclusivamente da CARBONIO e IDROGENO

IDROCARBURI SATURI o ALCANI -ANO

Negli alcani il carbonio presenta ibridazione sp^3 ed è in grado di formare 4 legami σ (SINGOLI) con altrettanti atomi di Carbonio o Idrogeno.

- CH_4 metano — metano

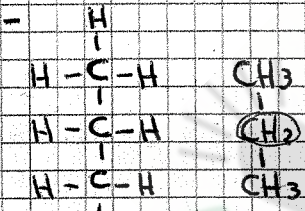
ogni idrocarburo si differenzia dal successivo per una ripetizione costante CH_2

- etano — CH_3-CH_3

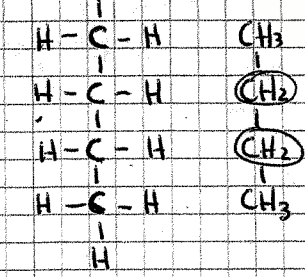
CH_3 → gruppo -METILICO

CH_2 → gruppo METILENICO

- propano



- butano

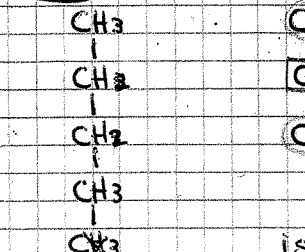


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ISOMERIA STRUTTURALE → propria di composti con la stessa composizione chimica che si differenziano per la DIVERSA DISPOSIZIONE DEGLI ATOMI COSTITUENTI

C_4H_{10} → forma ambigua:

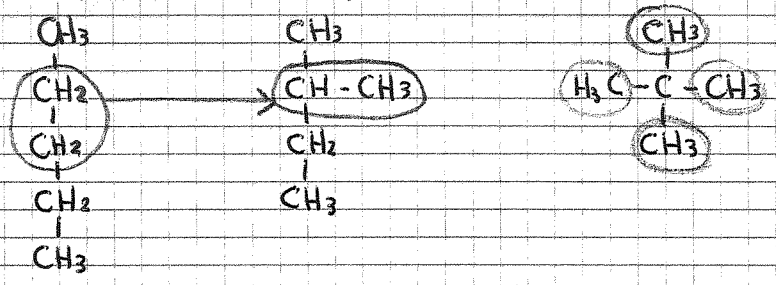


n-butano — isobutano → IUPAC — 2-METIL-BUTANO

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- Per il pentano sono possibili 3 ISOMERI:

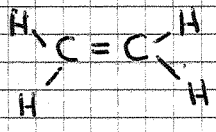


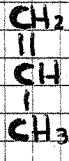
PENTANO — 2-METIL-BUTANO — 2,2-DIMETIL-PROPANO (neopentano)

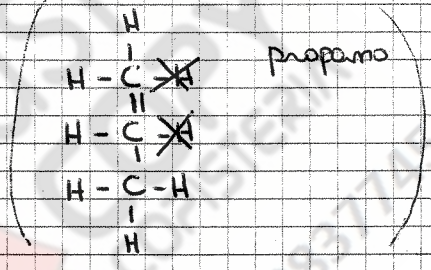
- molecole POCO POLARI → non si sciolgono nell'acqua
- hanno un punto di fusione/evaporazione basso → a temp ambiente sono LIQUIDI o GASSOSI

IDROCARBURI INSATURI o ALCHENI -ENE

Il carbonio è ibridato sp^2 e forma un doppio legame

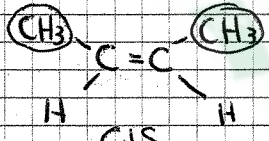
-  $CH_2=CH_2$ eteno

-  propene



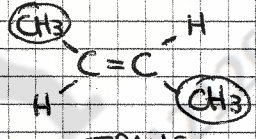
propano

ISOMERIA GEOMETRICA → caratteristica di quei composti aventi la stessa formula ma una DIVERSA DISPOSIZIONE RECIPROCA DEI GRUPPI RISPETTO AL DOPPIO LEGAME



CIS

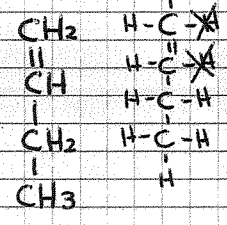
L'isomero cis presenta i 2 gruppi metilici dalla stessa parte del doppio legame



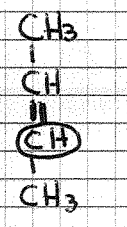
TRANS

L'isomero trans presenta ei presenta da parte opposta.

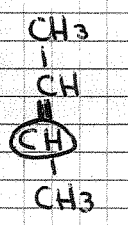
ISOMERIA STRUTTURALE → per gli alcheni è anche legata alla posizione del doppio legame



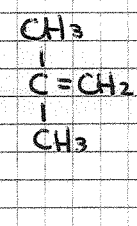
1-BUTENE



CIS-2-BUTENE



TRANS-2-BUTENE



2-METIL-PROPENE

- composti NON POLARI
- presentando il carbonio doppi legami negli alcheni vi è una zona di "densità" elettronica elevata perciò ad essi si aggiungono bene composti poveri di elettroni (ELETTROFILI)

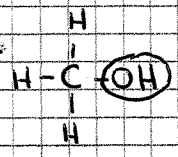
↓

REAZIONE DI ADDIZIONE ELETTROFILA

ALCOOLI → caratterizzati dal GRUPPO OSSIDRILE -OH

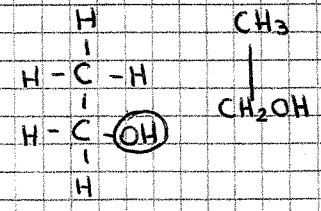
-OLO



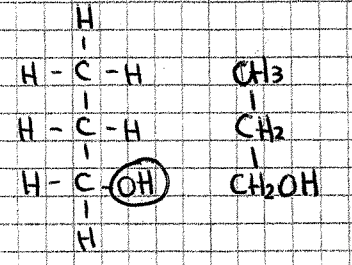


alcool metilico — metanolo

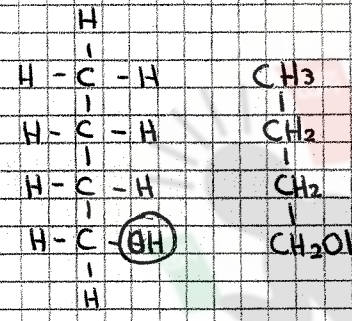
CH_3OH



alcool etilico — etanolo



alcool propilico — propanolo



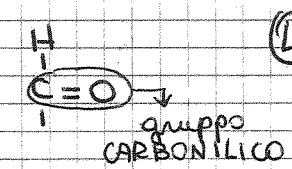
alcool butilico — butanolo

- molecole POLARI perché il gruppo -OH è molto polarizzato

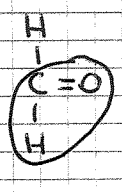
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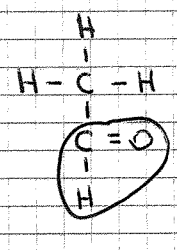
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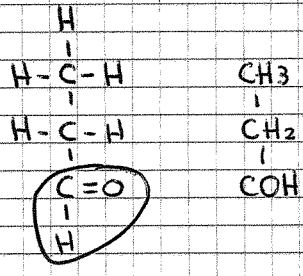
ALDEIDI → caratterizzati dal GRUPPO ALDEIDICO

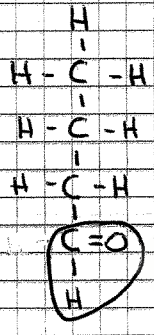


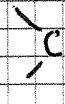
-ALE

-  H-CHO — aldeide formica — metanale

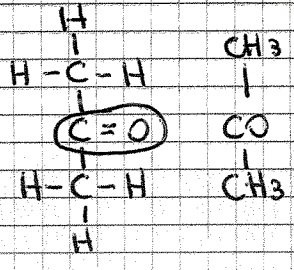
-  — a. acetica — etanale

-  — a. propionica — propanale

-  — butanale

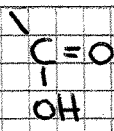
CHETONI → caratterizzati dal gruppo CHETONICO 

-ONE

 — acetone (dimetilchetone) — propanone

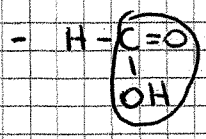
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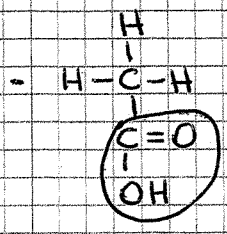
ACIDI CARBOSSILICI



-COOH GRUPPO CARBOSSILICO

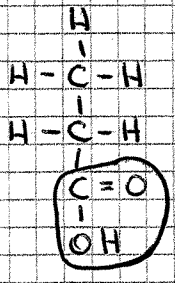
-OICO

-  H-COOH — acido formico — acido metanoico

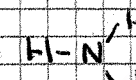
-  CH_3-COOH — a. acetico — a. etanoico

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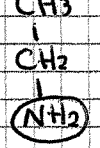
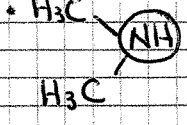
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-  — a. propionico — a. propanoico

- POLARE (per il legame CO)
- reaz. addizione
- può andare incontro a reazioni acido-base

-  NH_3 ammoniaca (base)

- $-NH_2$ ammina primaria GRUPPO AMMINICO
- $-NH$ ammina secondaria
- $=NH$ immina (L'azoto lega lo stesso atomo con doppio legame)

-  metil-ammina
-  etil-ammina
-  dimetil-ammina