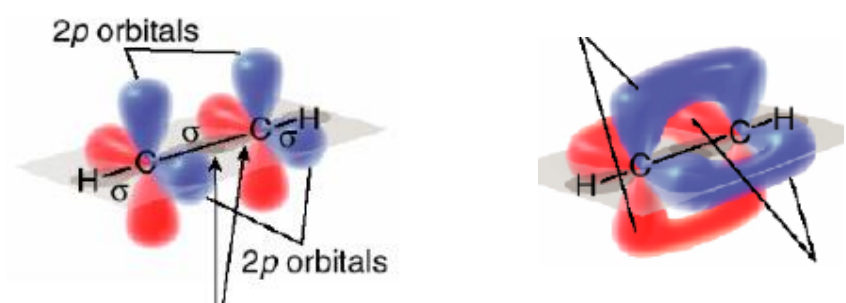
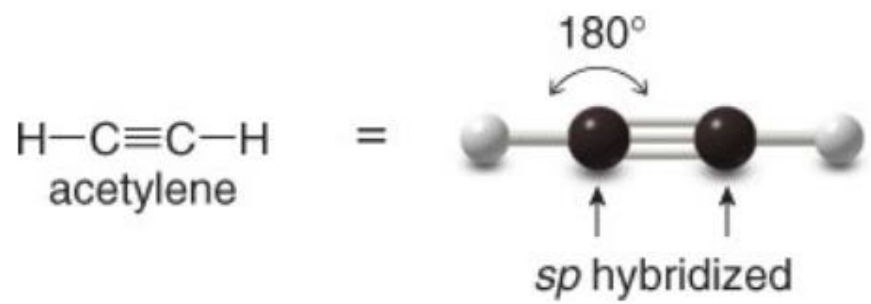
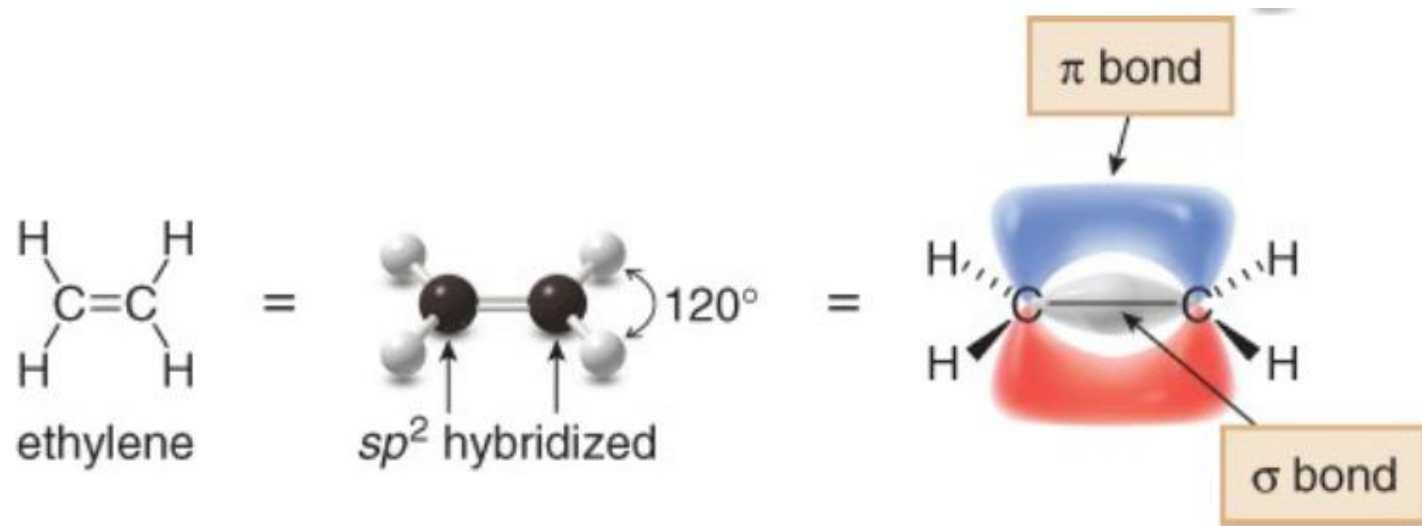


Alcheni (olefine) e alchini

Struttura e legami

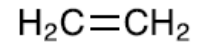


Nomenclatura IUPAC e comune

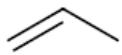
- IUPAC International Union of Pure and Applied Chemistry

	$\text{CH}_2 = \text{CH}_2$	$\text{CH}_3\text{CH} = \text{CH}_2$	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3\text{C} = \text{CH}_2 \end{array}$
Nome IUPAC:	Etene	Propene	2-Metilpropene
Nome d'uso:	Etilene	Propilene	Isobutilene

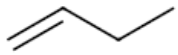
Semplici Alcheni e Alchini



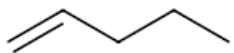
Etene o etilene



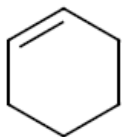
Propene



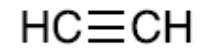
1-butene



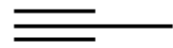
1-pentene



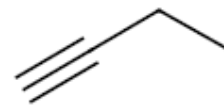
cicloesene



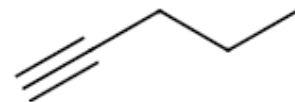
Etino o acetilene



Propino

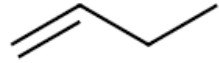


1-butino

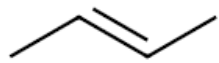


1-pentino

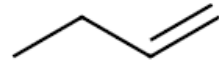
Isomeria costituzionale



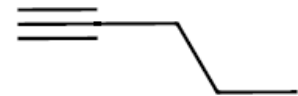
1-butene



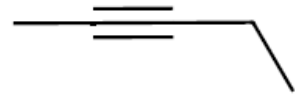
2-butene



1-butene



1-pentino



2-pentino



1-esene



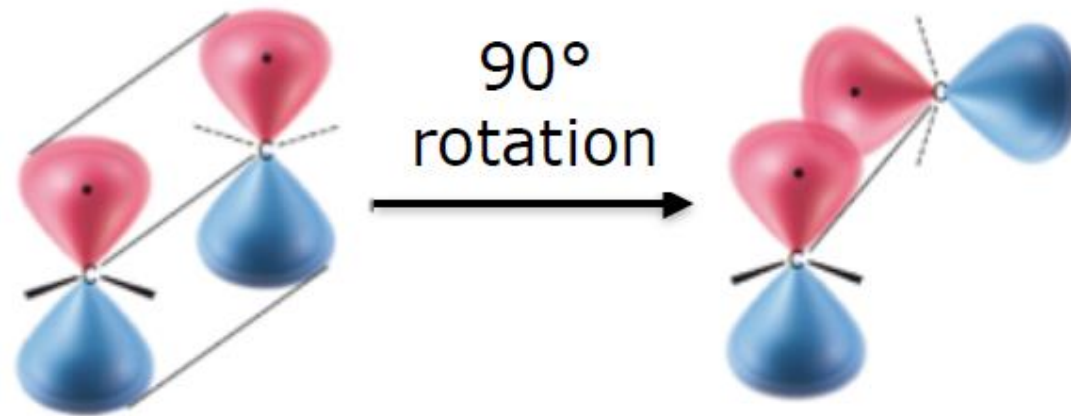
2-esene



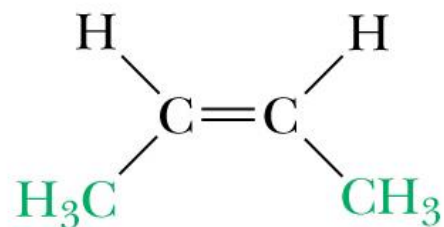
3-esene

Isomeria *cis-trans*

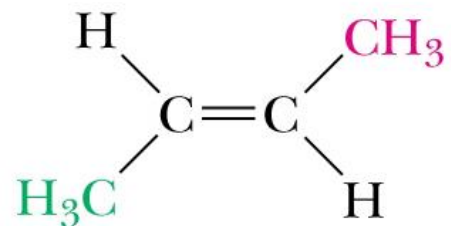
- La rotazione attorno al doppio legame è impedita



Isomeria *cis-trans* solo per alcheni disostituiti



cis-2-Butene
p.f. -139°C , p.e. 4°C

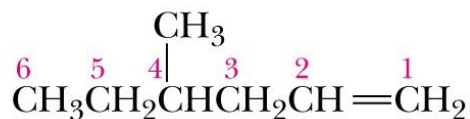


trans-2-Butene
p.f. -106°C , p.e. 1°C

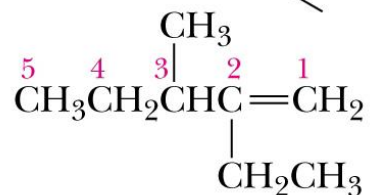
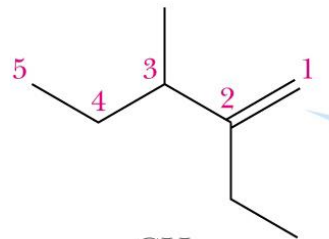
Nomenclatura alcheni monosostituiti



1-Esene



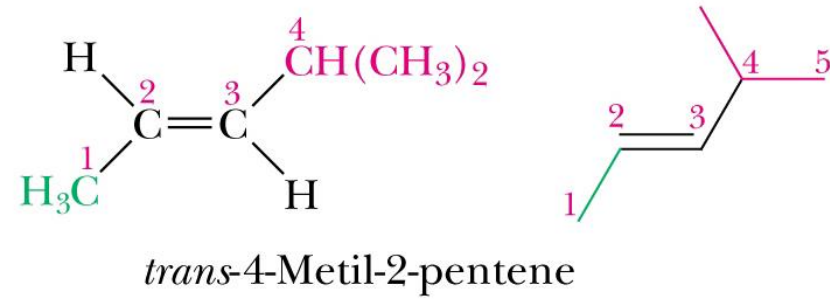
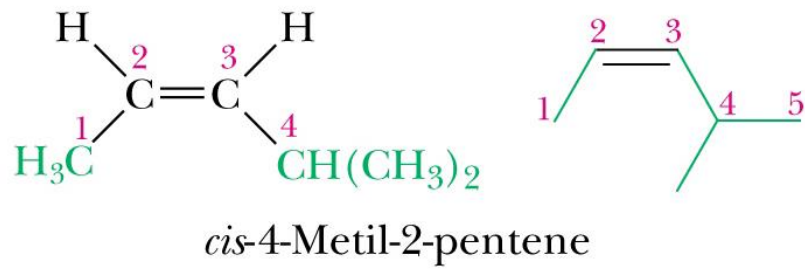
4-Metil-1-esene



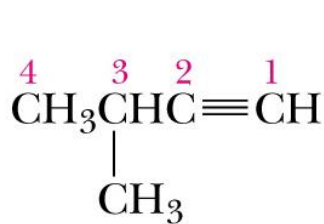
2-Etil-3-metil-1-pentene

nella nomenclatura degli alcheni, la catena principale è la catena più lunga contenente il legame C=C per intero, anche in presenza di una diversa catena più lunga non contenente il legame C=C

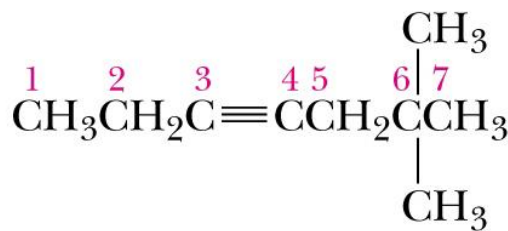
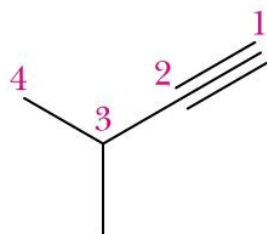
Nomenclatura



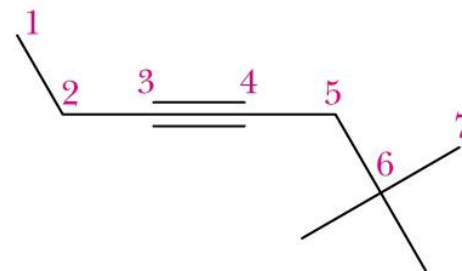
Nomenclatura alchini



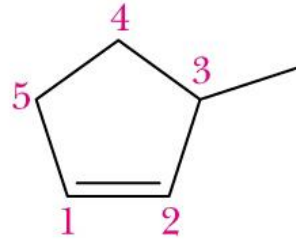
3-Metil-1-butino



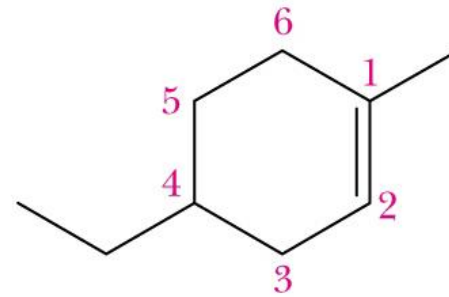
6,6-Dimetil-3-eptino



Nomenclatura cicloalcheni

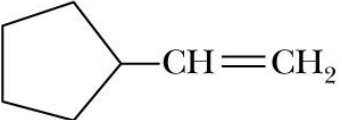
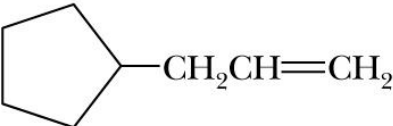
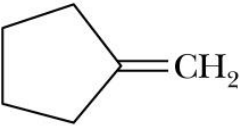


3-Metilciclopentene
(non 5-metilciclopentene)



4-Etil-1-metilcicloesene
(non 5-etil-2-metilcicloesene)

Residui alchenilici

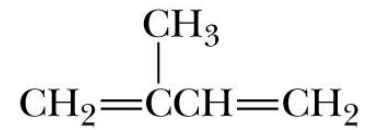
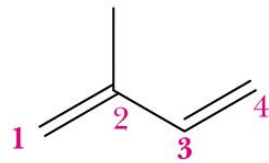
Gruppo alchenilico	Nome comune	Esempio	Nome comune
$\text{CH}_2=\text{CH}-$	Vinile		Vinilciclopentano
$\text{CH}_2=\text{CHCH}_2-$	Allile		Allilciclopentano
$\text{CH}_2=$	Metilene		Metilenciclopentano

$\text{H}-\text{C}\equiv\text{C}-$ etinile

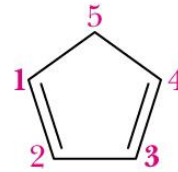
Nomenclatura dieni



1,4-Pentadiene

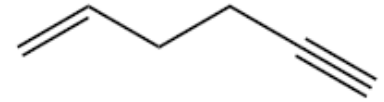
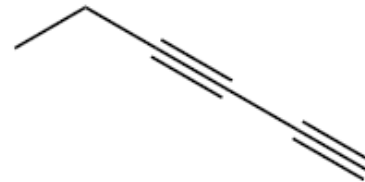
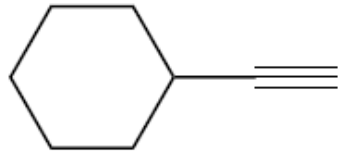
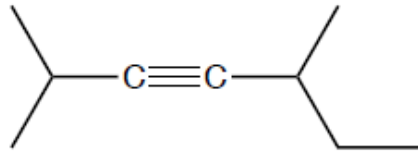
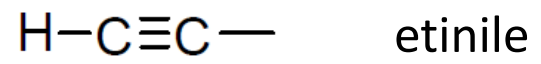


2-Metil-1,3-butadiene
(isoprene)

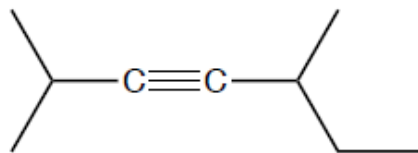
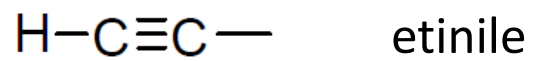


1,3-Ciclopentadiene

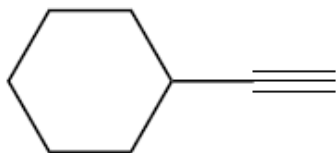
Nomenclatura



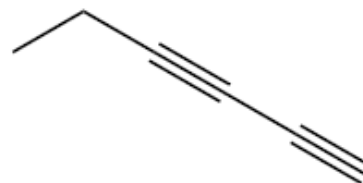
Nomenclatura



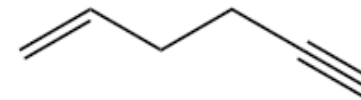
2,5-dimetil-3-eptino



etinilcicloesano

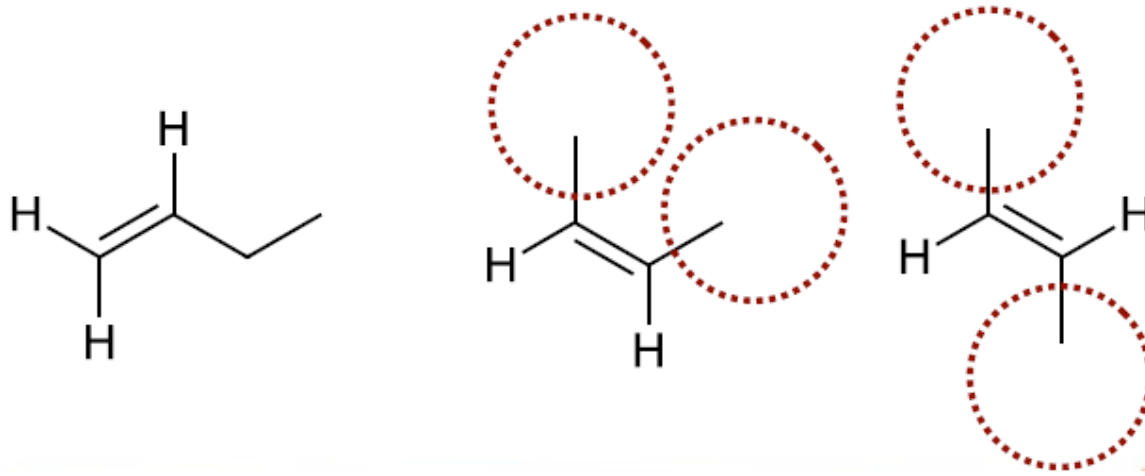


1,3-esadiino



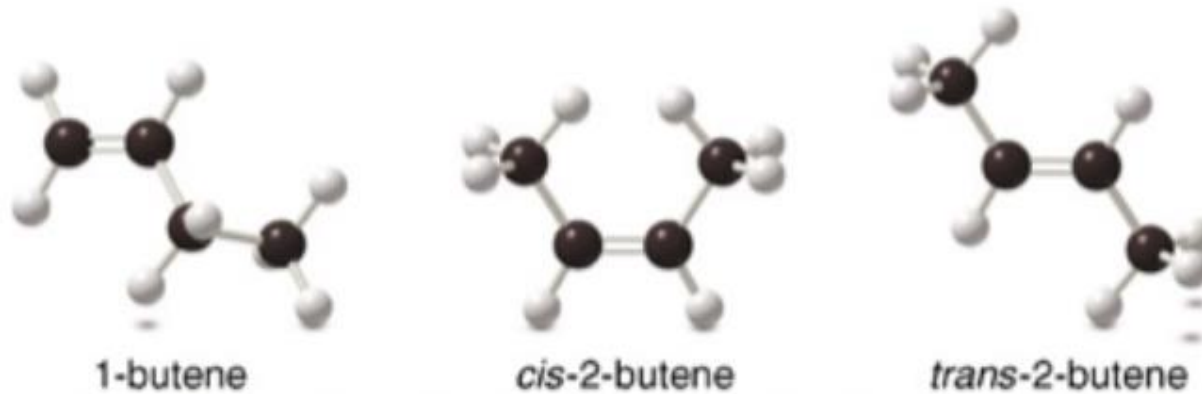
1-esen-5-ino

Isomeria geometrica

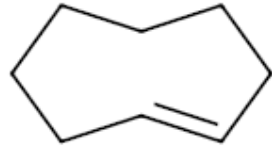


Gli alcheni più sostituiti
sono più stabili
Gli alcheni *trans* sono più
stabili dei *cis*

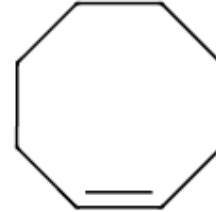
Aumento della stabilità



Cicloalcheni



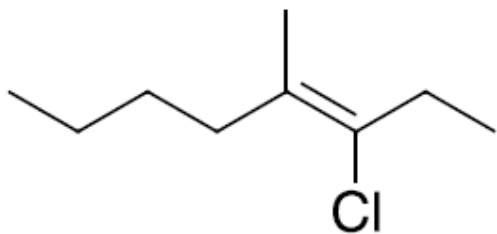
trans-cicloottene
meno stabile



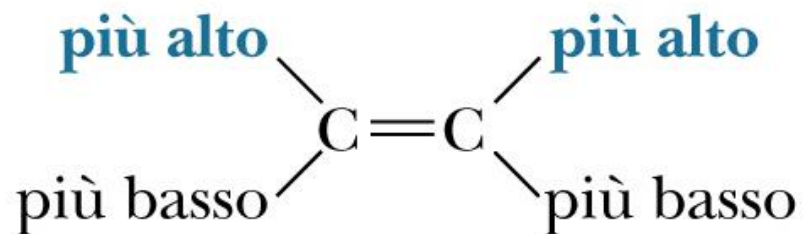
cis-cicloottene
più stabile

- Il *trans*-cicloottene è il più piccolo cicloalchene *trans* isolabile
- Il *trans*-cicloottene è considerevolmente MENO stabile del *cis*-cicloottene

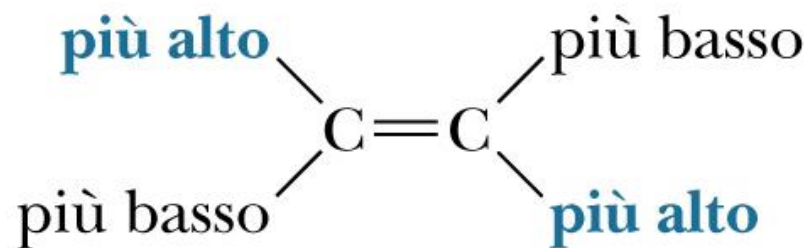
Nomenclatura *E/Z* per alcheni tri- e tetra-sostituiti



cis o trans?



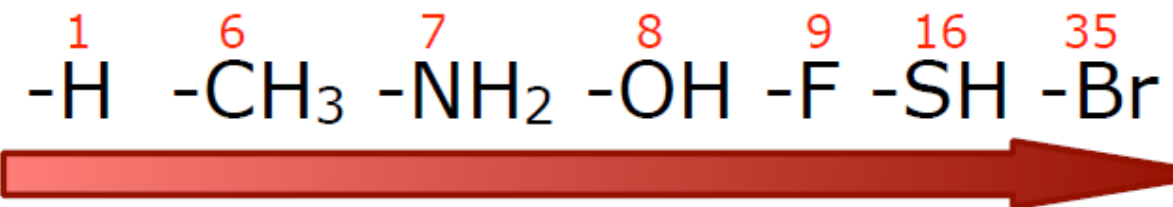
Z (*zusammen*)



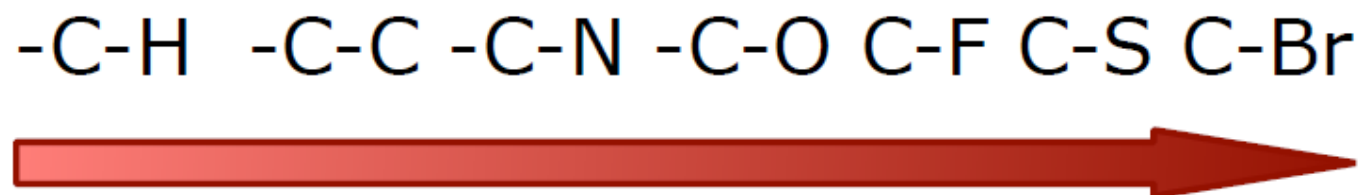
E (*entgegen*)

Regole di priorità

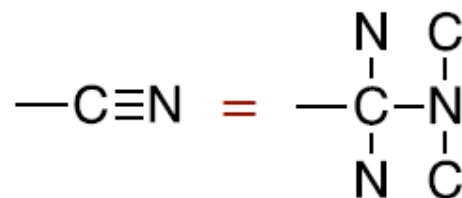
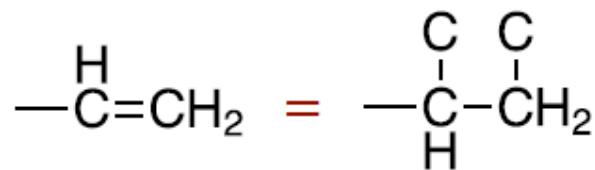
1. Numero atomico del primo atomo del sostituyente



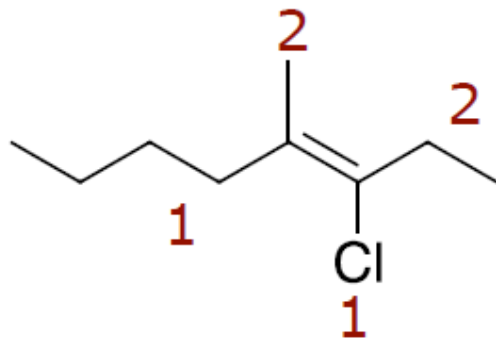
2. Numero atomico del secondo atomo del sostituyente



3. Legami multipli = n legami singoli

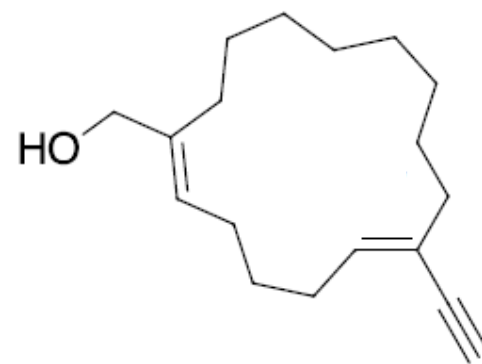
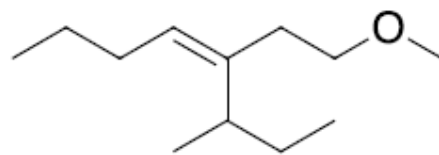
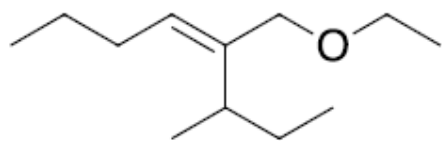
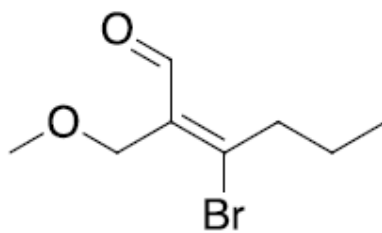
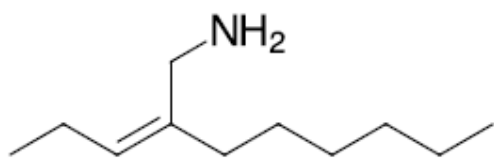


Nomenclatura *E/Z* per alcheni tri- e tetra-sostituiti

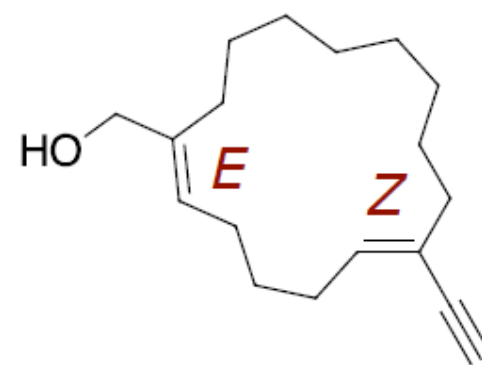
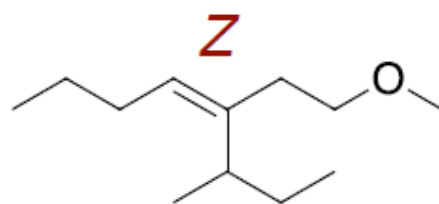
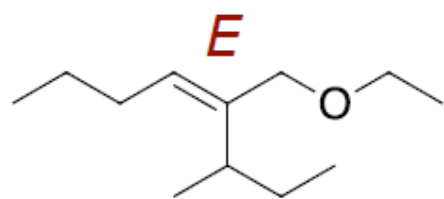
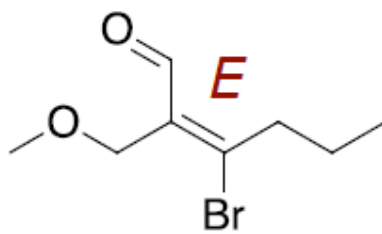
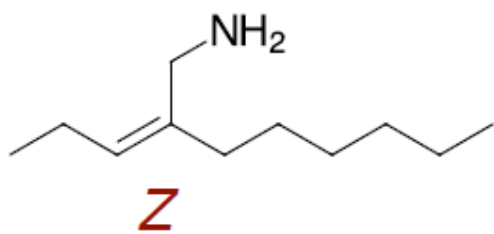


Z-3-cloro-4-metil-3-ottene

E or *Z*?

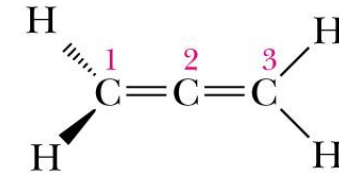


E or *Z*?



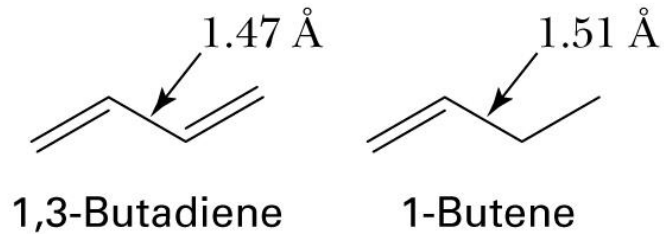
Dieni

- Diene cumulato
 - Propadiene (allene)



1,2-Propadiene
(allene)

- Diene coniugato
 - 1,3-butadiene
 - Elettroni π delocalizzati



1,3-Butadiene

1-Butene

- Diene isolato
 - 1,4-Pentadiene



1,4-Pentadiene

Proprietà fisiche

- Simili a quelle degli alcani di peso molecolare comparabile
- Alcheni e alchini hanno punti di fusione e di ebollizione bassi
- P.f. e p.e. aumentano all'aumentare del numero di atomi di carbonio perché aumenta l'area superficiale
- Sono solubili in solventi organici e insolubili in acqua