



Lista de Exercícios

Nomenclatura Orgânica: Hidrocarbonetos – Parte 1

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1. Regras de nomenclatura

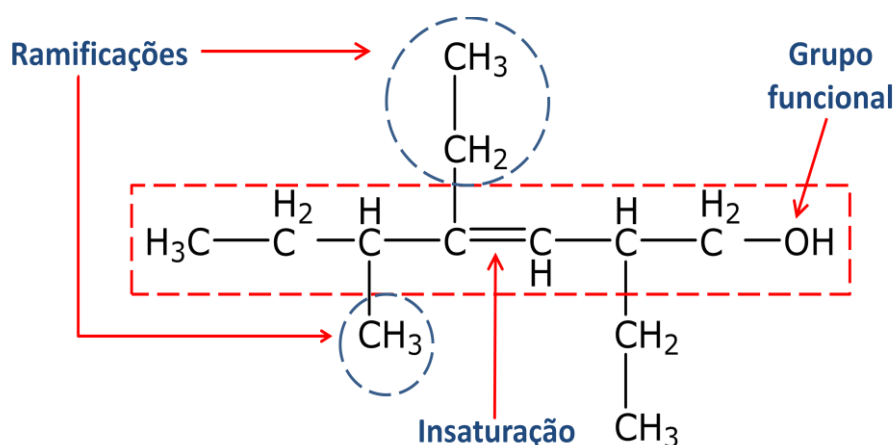
A **IUPAC** (International Union of Pure and Applied Chemistry) considera como a nomenclatura oficial dos compostos orgânicos a seguinte estrutura:

PREFIXO	+	INFIXO	+	SUFIXO
Número de Átomos de Carbono		Tipo de Ligação entre Carbonos		Função Orgânica
1 = MET		AN		O
2 = ET		SÓ LIGAÇÕES SIMPLES		HIDROCARBONETO
3 = PROP		EN		OL
4 = BUT		UMA LIGAÇÃO DUPLA		ÁLCOOL
5 = PENT		IN		AL
6 = HEX		UMA LIGAÇÃO TRIPLA		ALDEÍDO
7 = HEPT		DIEN		ONA
8 = OCT		DUAS LIGAÇÕES DUPLAS		CETONA
9 = NON		TRIEIN		ÓICO
10 = DEC		TRÊS LIGAÇÕES DUPLAS		ÁCIDO CARBOXÍLICO
11 = UNDEC		DIIN		AMIDA
12 = DODEC		DUAS LIGAÇÕES TRIPLAS		AMIDA

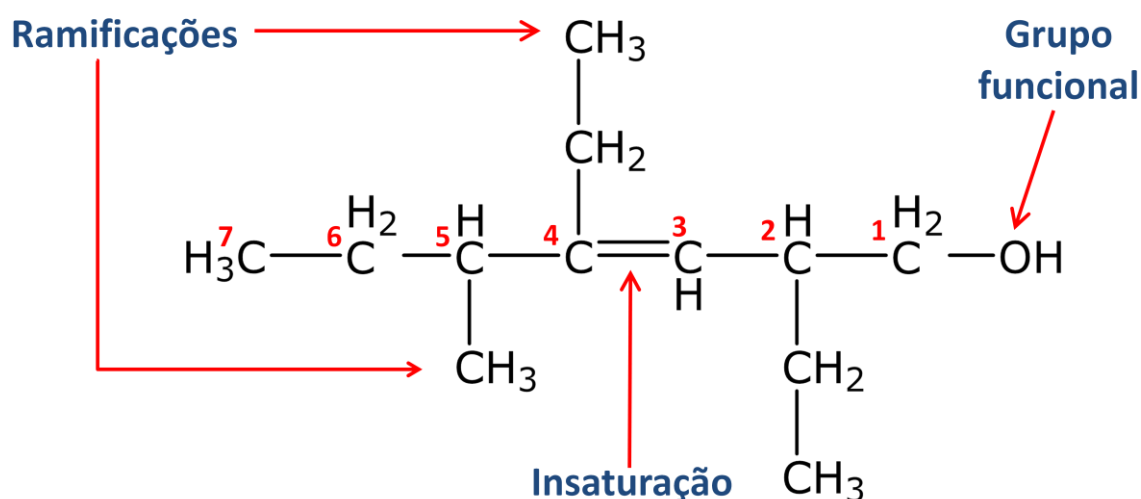
2. Numeração das cadeias

A cadeia principal para cadeias carbônicas abertas é aquela com maior número de átomos de carbonos que contenham:

- grupo funcional (procure átomos que não sejam carbono e hidrogênio);
- maior número de insaturações (ligações duplas ou triplas entre carbonos);
- maior número de grupos radicais substituintes.



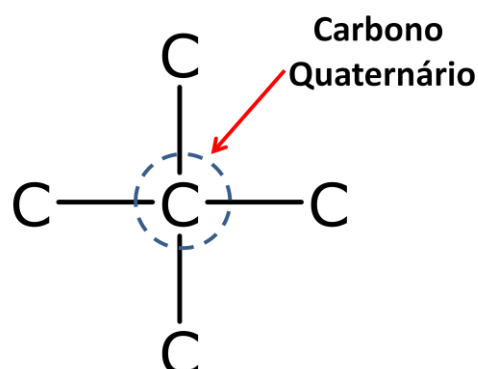
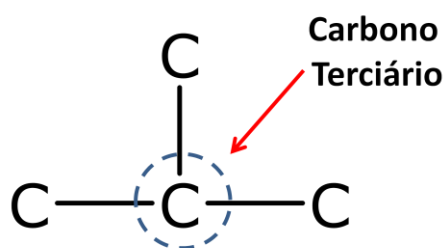
Começar a numerar a cadeia com os menores números possíveis a partir da extremidade de acordo com a preferência:



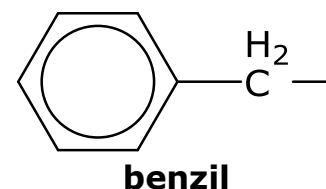
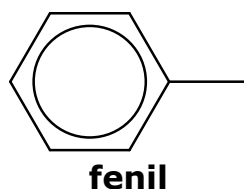
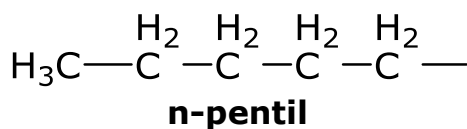
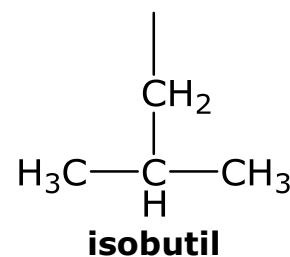
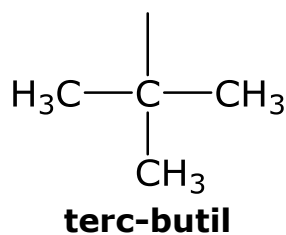
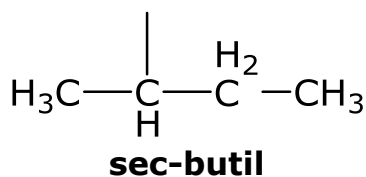
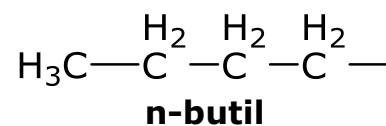
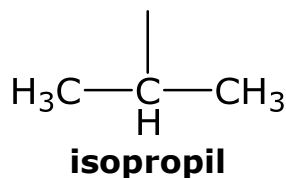
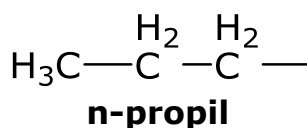
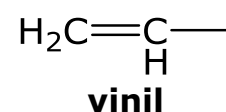
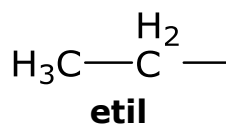
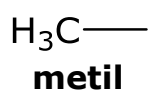
Quando houver só uma possibilidade, a numeração não precisa ser indicada.

3. Ramificações

Hidrocarbonetos ramificados apresentam pelo menos um carbono terciário ou quaternário. Não existem ramificações em carbonos secundários e primários.



3.a. Principais ramificações



4. Regra de nomenclatura para compostos orgânicos ramificados

RADICAL + PREFIXO + INFIXO + SUFIXO

Observação: radicais diferentes devem ser colocados em ordem alfabética

Dê os nomes dos seguintes compostos orgânicos:

$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}_2 \\ \\ \text{H} \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}-\text{CH}_3 \\ \\ \text{H} \end{array}$	$\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3$
$\text{H}_3\text{C}-\text{C}\equiv\text{CH}$	$\begin{array}{c} \text{H}_2 \\ \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \quad \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \end{array}$
$\begin{array}{c} \text{H} \\ \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2\text{C}=\text{C}-\text{CH}_2-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H} \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \\ \\ \text{HC}=\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \\ \\ \text{H}_2\text{C}-\text{C}-\text{C}=\text{CH}_2 \\ \\ \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{H}_2\text{C}=\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \\ \\ \text{HC}=\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \quad \\ \text{HC}=\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_2 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{C}=\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{H}_2\text{C}-\text{C}-\text{C}=\text{CH} \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{C}=\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{HC}=\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \end{array}$
$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \quad \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_2-\text{CH}_3 \end{array}$	$\begin{array}{c} \text{H}_2 \\ \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_2-\text{C}-\text{CH}_3 \\ \\ \text{H}_2 \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{CH} \quad \text{CH}_3 \quad \text{CH}_3 \\ \quad \quad \quad \\ \text{CH}_3 \quad \text{CH}-\text{C}-\text{CH}_2 \\ \\ \text{H} \end{array}$

$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}_2 \\ \\ \text{H} \\ \text{propeno} \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}-\text{CH}_3 \\ \\ \text{H} \\ \text{but-2-eno} \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3 \\ \text{but-1-ino} \end{array}$
$\begin{array}{c} \text{H}_3\text{C}-\text{C}\equiv\text{CH} \\ \text{propino} \end{array}$	$\begin{array}{c} \text{H}_2 \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \\ \text{propano} \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \text{butano} \end{array}$
$\begin{array}{c} \text{H} \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{CH}_3 \\ \\ \text{CH}_3 \\ \text{metilbutano} \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{CH}-\text{CH}_3 \\ \\ \text{CH}_3 \\ \text{metilbut-2-eno} \end{array}$	$\begin{array}{c} \text{H}_2\text{C}=\text{C}-\text{CH}_2-\text{CH}_3 \\ \\ \text{CH}_3 \\ \text{2-metilbut-1-eno} \end{array}$
$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \\ \text{pentano} \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \quad \text{CH}_3 \\ \text{hexano} \end{array}$	$\begin{array}{c} \text{H}_2 \quad \text{H} \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \quad \\ \text{CH}_3 \quad \quad \text{CH}_3 \\ \text{2-metilpentano} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \\ \text{3-metil-hexano} \end{array}$	$\begin{array}{c} \text{H}_2 \\ \text{HC}=\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \\ \text{pent-2-eno} \end{array}$	$\begin{array}{c} \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}=\text{CH}_2 \\ \\ \text{CH}_3 \\ \text{pent-1-eno} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \\ \text{2,3-dimetilbutano} \end{array}$	$\begin{array}{c} \text{H} \\ \text{H}_2\text{C}=\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \\ \text{2,3-dimetilbut-1-eno} \end{array}$	$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \\ \text{dimetilbut-2-eno} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{2,3-dimetilpentano} \end{array}$	$\begin{array}{c} \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3-metil-hexano} \end{array}$	$\begin{array}{c} \text{H}_2 \\ \text{HC}=\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3-metil-hex-2-eno} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \text{HC}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_2 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3-metil-hex-1-eno} \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{C}=\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3-metil-hex-3-eno} \end{array}$	$\begin{array}{c} \text{H} \\ \text{H}_2\text{C}-\text{C}-\text{C}=\text{CH} \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{4-metil-hex-2-eno} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H} \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3,4-dimetil-hexano} \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{C}=\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3,4-dimetil-hex-3-eno} \end{array}$	$\begin{array}{c} \text{H} \\ \text{HC}=\text{C}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \text{3,4-dimetil-hex-2-eno} \end{array}$
$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_2-\text{CH}_3 \\ \text{etilpentano} \end{array}$	$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \text{H}_2\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_2-\text{C}-\text{CH}_3 \\ \quad \quad \\ \quad \quad \text{H}_2 \\ \quad \quad \text{etil-hexano} \end{array}$	$\begin{array}{c} \text{H}_2\text{C}-\text{CH} \quad \text{CH}_3 \quad \text{CH}_3 \\ \quad \quad \quad \\ \text{CH}_3 \quad \text{CH}-\text{C}-\text{CH}_2 \\ \quad \quad \\ \quad \quad \text{H} \\ \text{5-metil-hep-3-eno} \end{array}$