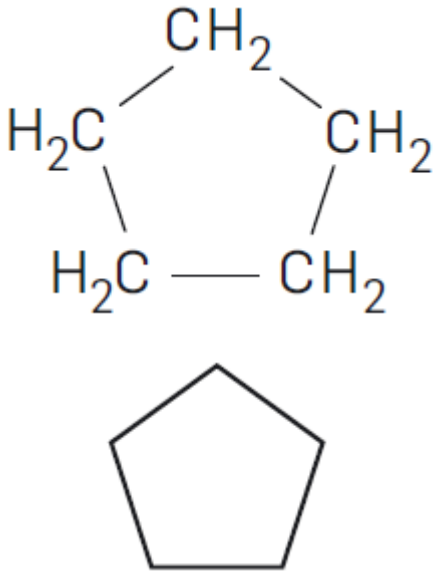
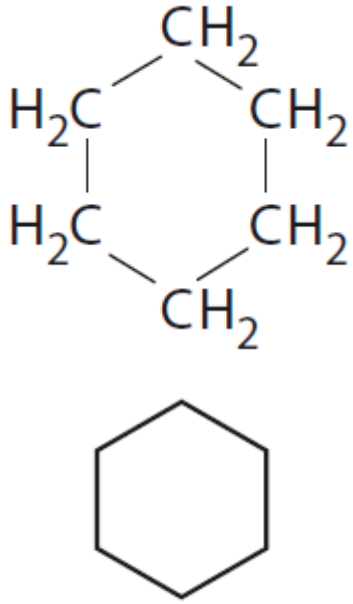
Sumário

- Cicloalcanos.
- Cracking (térmico e catalítico).
- Resolução de exercícios.

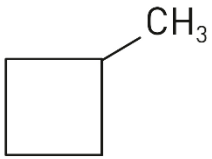
Ciclo-Alcanos

1. Os cicloalcanos respeitam as mesmas regras que os alcanos, antecedendo apenas o prefixo **ciclo**.

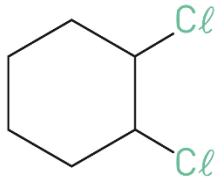




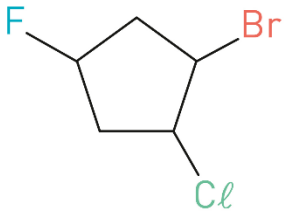
Ciclo-Alcanos



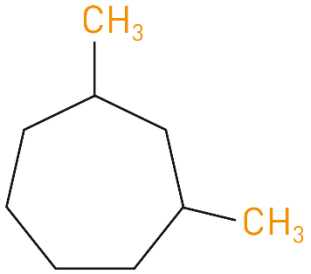
Metilciclobutano



1,2-diclorociclo-hexano



1-bromo-2-cloro-4-fluorociclopentano



1,3-dimetilciclo-heptano

Cracking

Consiste em reações em que **moléculas grandes** de hidrocarbonetos são **transformadas** em **moléculas** mais **pequenas**:

- por aquecimento :***cracking* térmico**
- ppor ação de catalisadores: ***cracking* catalítico**

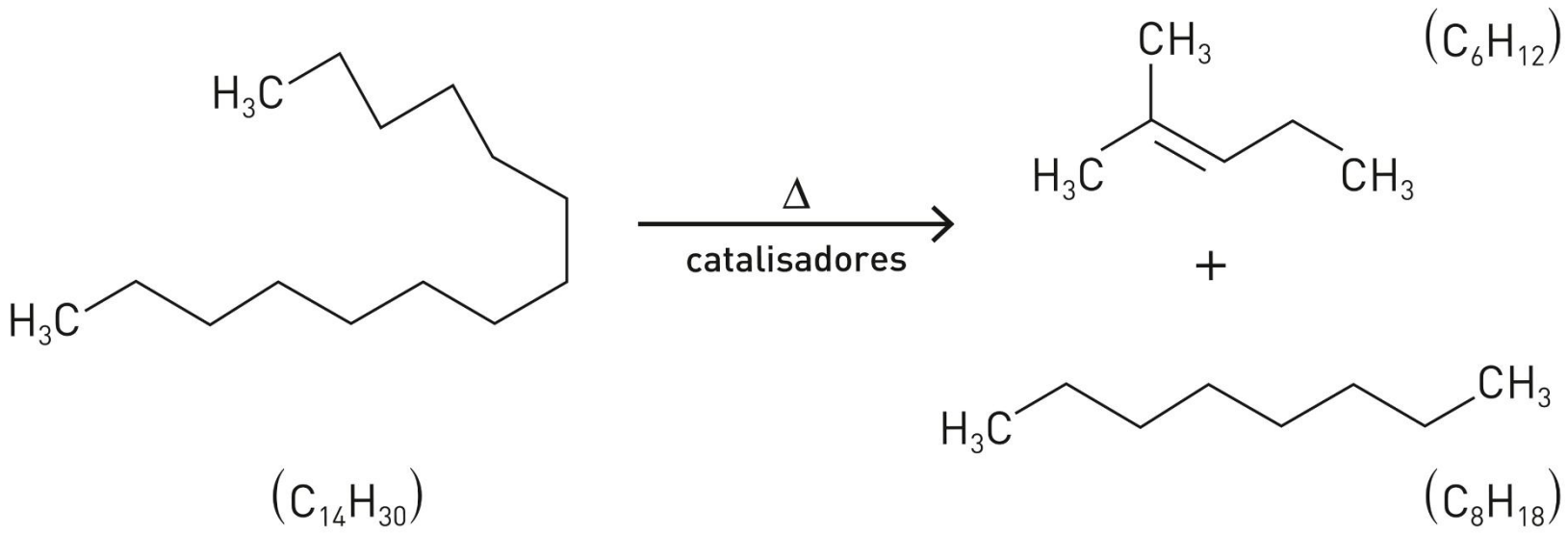
A extração do petróleo gera muitos **hidrocarbonetos pesados.**

Cracking

(transformação química)

Os **hidrocarbonetos leves** são economicamente mais rentáveis.

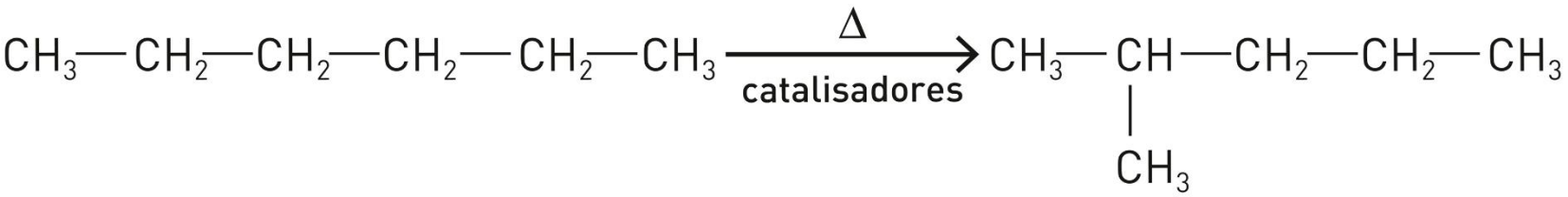
Cracking catalítico



$$C_{10}H_{22} \rightarrow C_5H_{12} + CH_3{-}CH{=}CH_2 + CH_2{=}CH_2$$

Cracking catalítico

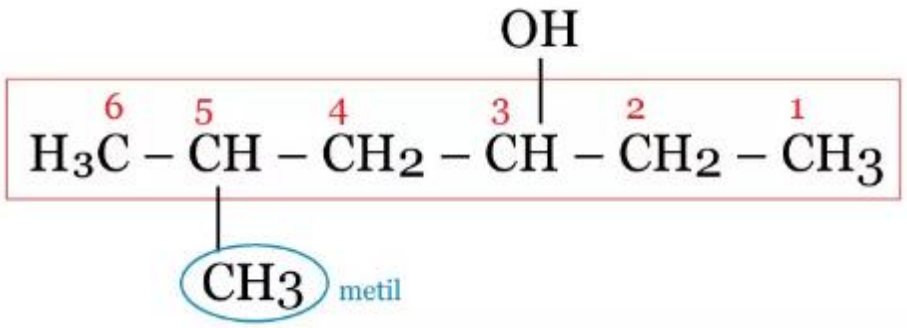
A obtenção de hidrocarbonetos ramificados a partir de hidrocarbonetos lineares, por aquecimento e utilizando catalisadores, designa-se por **reação de isomerização**.



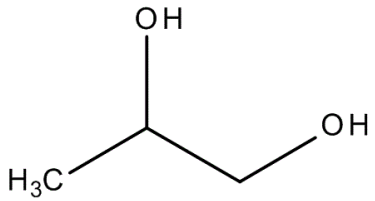
Nota: A **isomeria** corresponde a compostos orgânicos que apresentam a **mesma fórmula molecular e diferente disposição no espaço dos seus átomos**.

O que já sabemos!

Álcoois



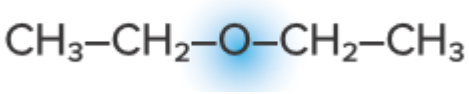
Fórmula de estrutura do 5-metil-hexan-3-ol



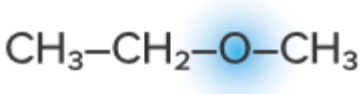
Fórmula de estrutura do propano-1,2-diol

Regra geral + terminação -ol

Éteres



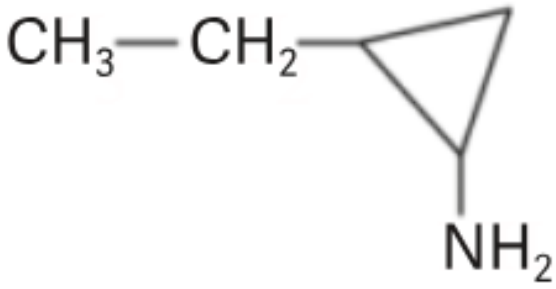
Etoxietano



Metoxietano

Regra geral (cadeia mais pequena) + -oxi + Regra geral

Aminas

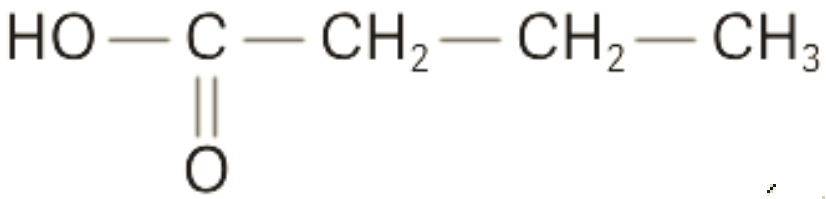


2-etilciclopropanamina

Nome da cadeia carbonada + amina

Ácidos carboxílicos

Ácido + Nome da cadeia carbonada + óico



Ácido butanoico

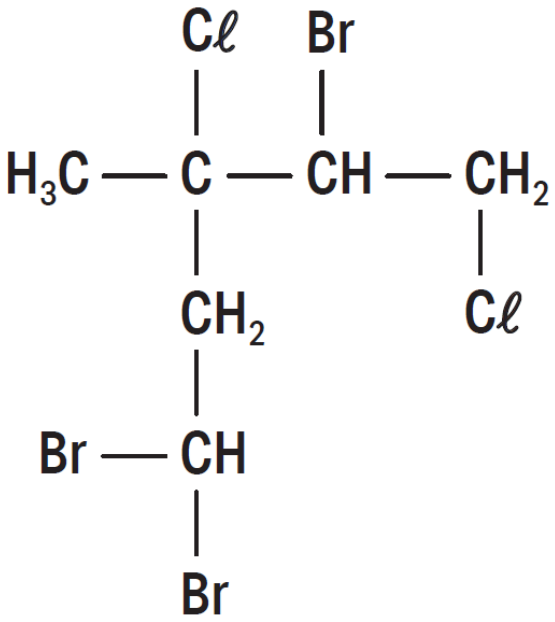
Curiosidade!

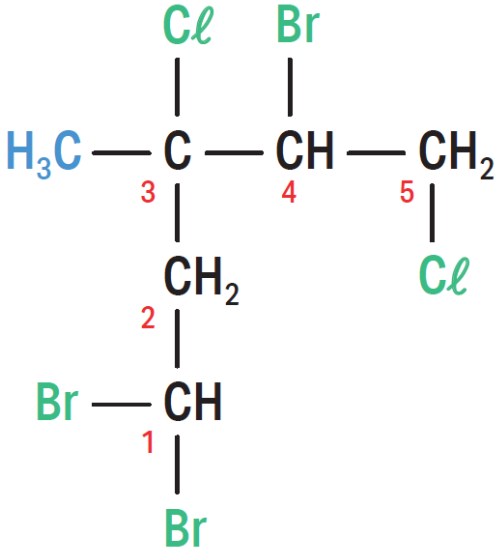
✓ Quando existe um composto com **vários grupos funcionais**, a terminação do alcano "parente" deverá ter em conta a hierarquia que se segue:

- Ácido carboxílico
- Ésteres
- Halogenetos de ácido
- Amidas
- Aldeídos
- Cetonas
- Álcool
- Aminas

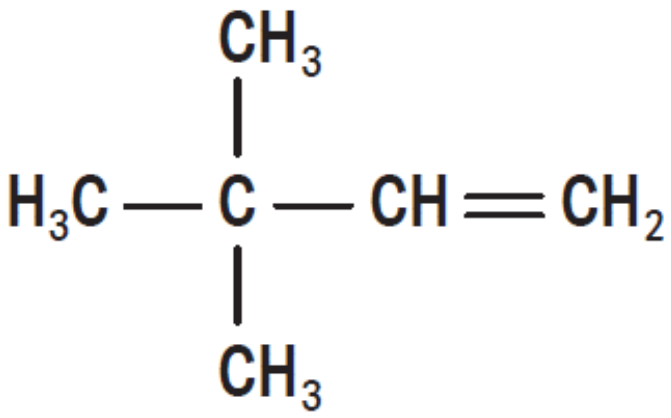
Exercícios

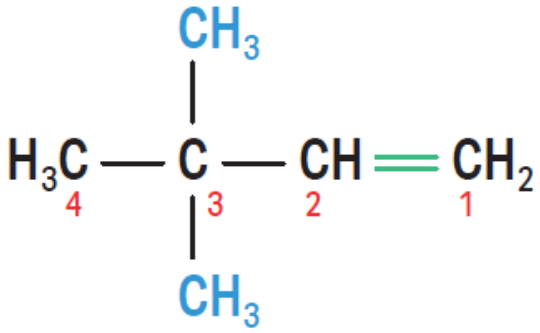
Nome IUPAC



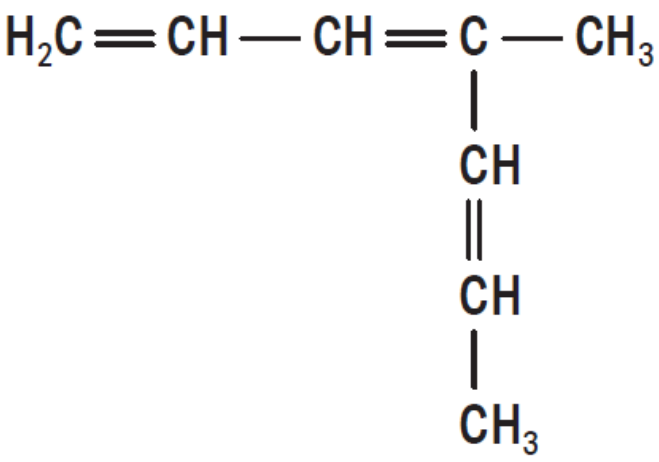


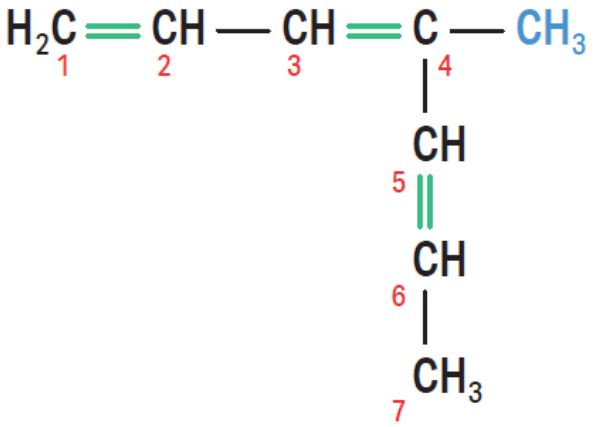
1,1,4-tribromo-3,5-dicloro-3-metilpentano



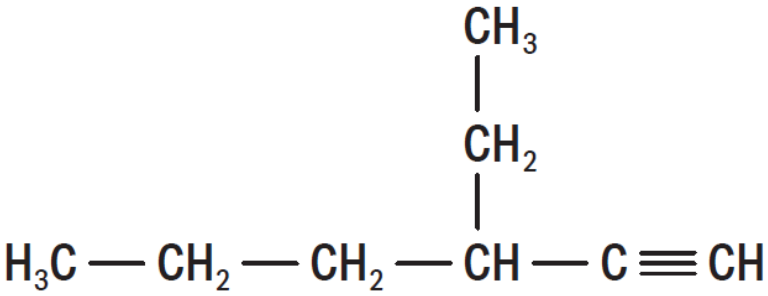


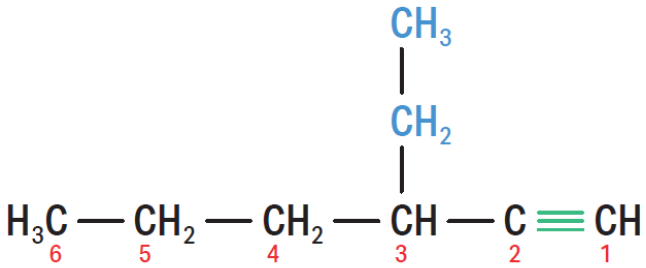
3,3-dimetilbut-1-eno



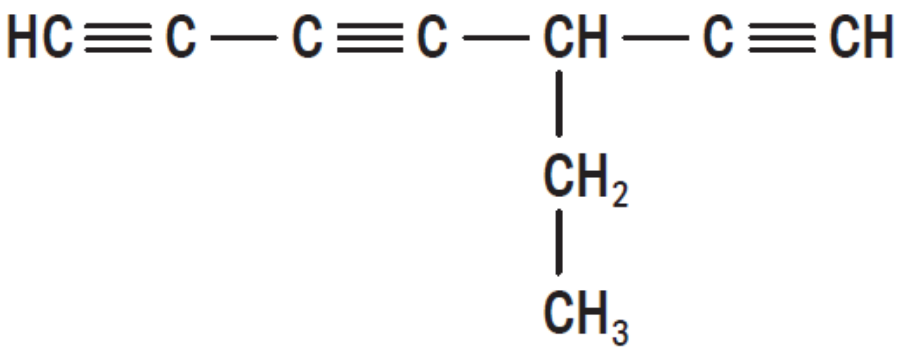


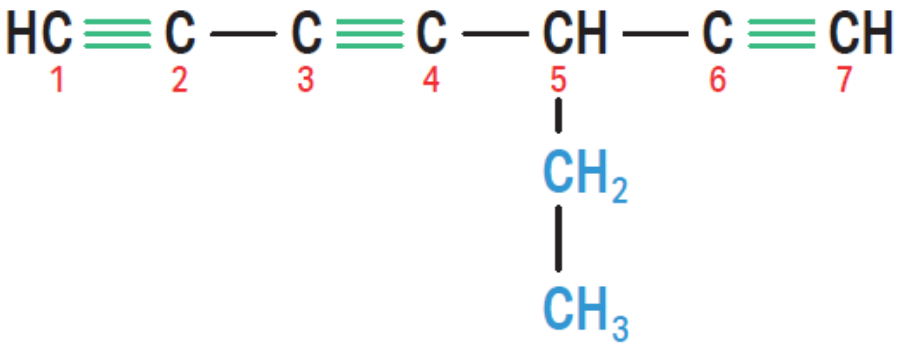
4-metil-hept-1,3,5-trieno





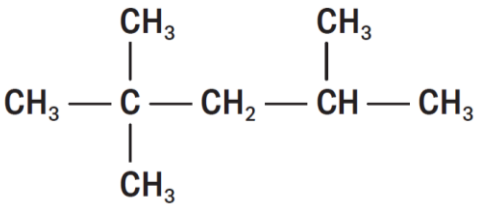
3-etil-hex-1-ino



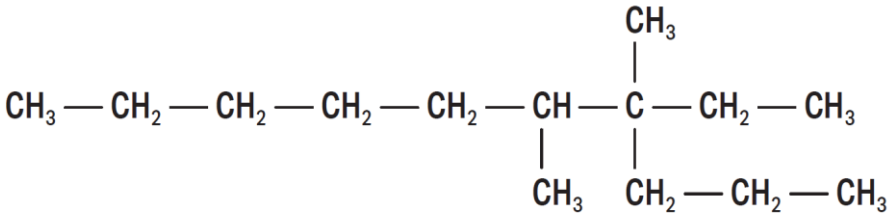


5-etil-hept-1,3,6-triino

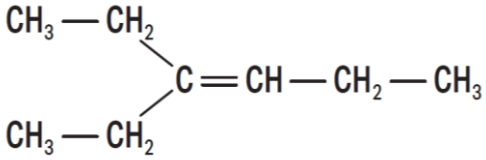
1 Escreva o nome dos hidrocarbonetos seguintes.



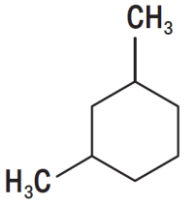
(A)



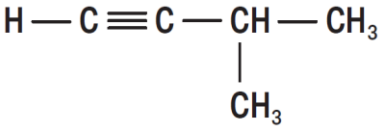
(B)



(C)



(D)

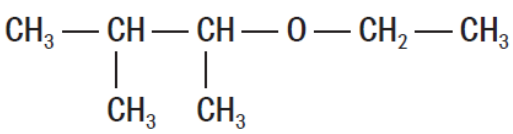


(E)

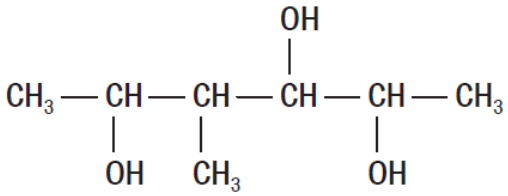
Resolução

1 (A) 2,2,4-trimetilpentano; (B) 4-etil-4,5-dimetildecano; (C) 3-etil-hex-3-eno
(D) 1,3-dimetilciclo-hexano; (E) 3-metilbut-1-ino

2 Indique o nome IUPAC dos compostos representados pelas seguintes fórmulas de estrutura:



(A)



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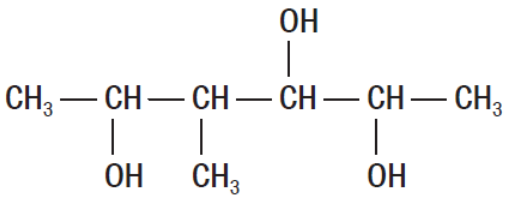

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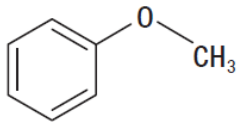

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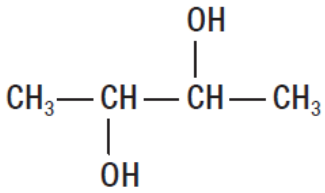

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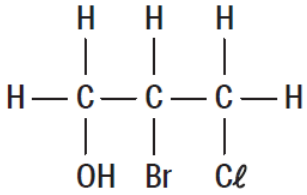
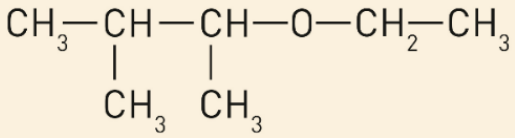


(F)

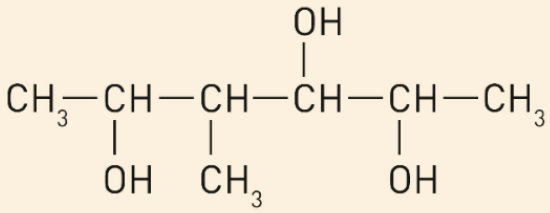
Resolução

2 (A) Etoxi-1,2-dimetilpropano
(B) 4-metil-hexano-2,3,5-triol
(C) Pentan-2-ol
(D) Metoxiciclo-hexano
(E) Butano-2,3-diol
(F) 2-bromo-3-cloropropan-1-ol

ndique o nome IUPAC dos compostos representados pelas seguintes fórmulas de estrutura.



(A)



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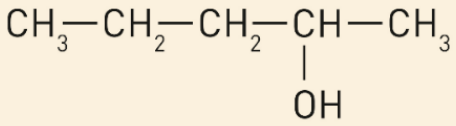

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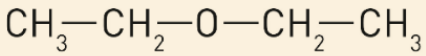

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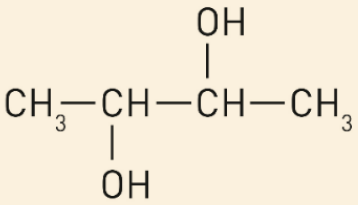

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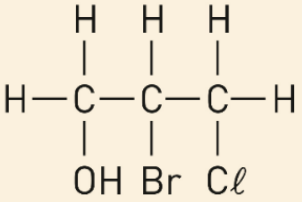

(F)

Resolução

(A) Etoxi-1,2-dimetilpropano

(B) 4-metil-hexano-2,3,5-triol

(C) Pentan-2-ol

(D) Etoxietano

(E) Butano-2,3-diol

(F) 2-bromo-3-cloropropan-1-ol