

Doc 1. Groupe fonctionnel

En chimie organique, les molécules possèdent des groupes fonctionnels ayant des particularités. Les groupements fonctionnels suivants sont à connaître :

cas simples

famille chimique	Alcool	Aldéhyde	Cétone	Acide carboxylique
groupe caractéristiques	$-O-H$	$\begin{array}{c} O \\ // \\ -C \\ \backslash \\ H \end{array}$	$\begin{array}{c} O \\ // \\ C-C \\ \backslash \\ C \end{array}$	$\begin{array}{c} O \\ // \\ -C \\ \backslash \\ OH \end{array}$
nom du groupement	hydroxyle	Carbonyle	Carbonyle	carboxyle

cas complexes

famille chimique	Alcène	ester	amine	Amide	halogénure
groupe caractéristiques	$\begin{array}{c} \diagup \\ C=C \\ \diagdown \end{array}$	$\begin{array}{c} O \\ // \\ -C \\ \backslash \\ O-C \end{array}$	$\begin{array}{c} \diagup \\ -N \\ \diagdown \end{array}$	$\begin{array}{c} O \\ // \\ -C \\ \backslash \\ N- \\ \end{array}$	
nom du groupement		ester	amine	amide	

Doc 2. Bandes spectrales

liaison	Nombre d'ondes (cm ⁻¹)	intensité
O—H	3200-3650	Bande large
N—H	3100-3500	M
$\begin{array}{c} \diagup \\ C= \\ \diagdown \end{array}$	3000-3100	M
$\begin{array}{c} \\ -C- \\ \end{array}$	2800-3000	F
C=O	1650-1750	F
C=C	1625-1685	M
$\begin{array}{c} \\ -C- \\ \end{array}$	1415-1470	F
C—O	1050-1450	F
C-N	1020 – 1220	M

Doc 3. Formule semi-développée à identifier

- | | |
|---|--|
| <p>(A) $CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-OH$</p> <p>(B) $CH_3-CH_2-CH_2-CH_2-\begin{array}{c} O \\ // \\ C \\ \backslash \\ NH_2 \end{array}$</p> <p>(C) $CH_3-CH_2-\begin{array}{c} O \\ // \\ C \end{array}-CH_2-CH_3$</p> <p>(D) $CH_3-CH_2-CH_2-CH_2-CH_2-OH$</p> <p>(E) $CH_3-CH_2-CH_2-CH_2-NH_2$</p> | <p>(F) $CH_3-CH_2-CH_2-CH_2-\begin{array}{c} O \\ // \\ C \\ \backslash \\ OH \end{array}$</p> <p>(G) $CH_3-CH_2-CH_2-CH=CH_2$</p> <p>(H) $CH_3-CH_2-CH_2-CH_2-\begin{array}{c} O \\ // \\ C \\ \backslash \\ H \end{array}$</p> <p>(I) $CH_3-CH_2-CH_2-CH_2-CH_3$</p> <p>(J) $CH_3-\begin{array}{c} \\ CH \\ \\ CH_3 \end{array}-CH_2-\begin{array}{c} O \\ // \\ C \end{array}-CH_3$</p> <p>(K) $CH_3-CH_2-\begin{array}{c} O \\ // \\ C \\ \backslash \\ O-CH_2-CH_3 \end{array}$</p> |
|---|--|

Doc 4. Spectre de différentes molécules

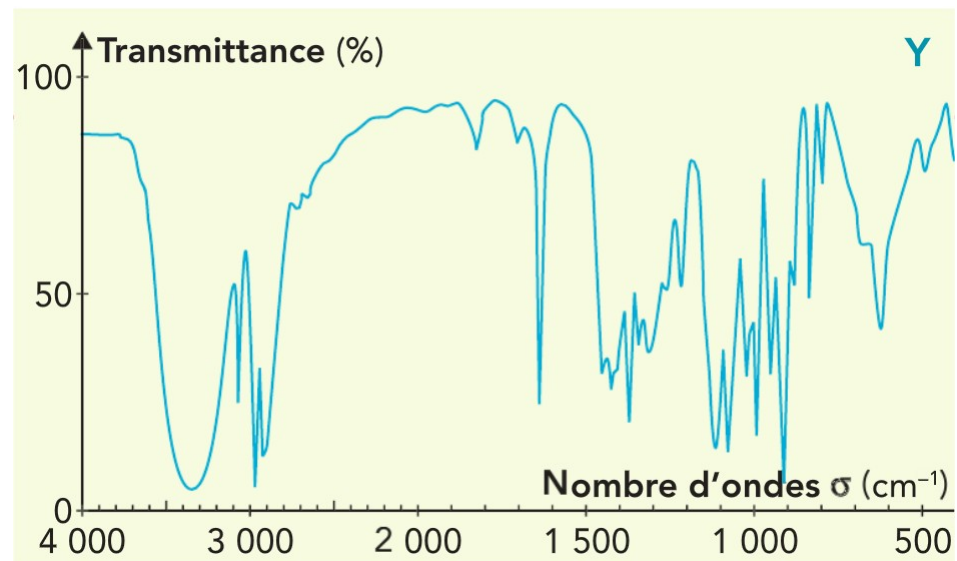


Illustration 1: hexan-1-ol

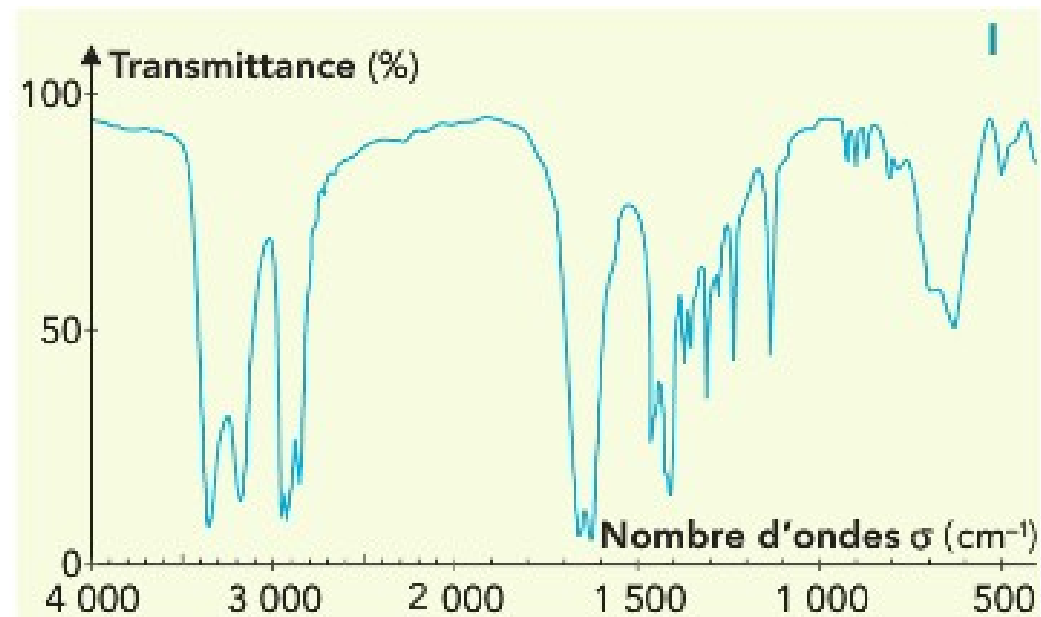


Illustration 2: pentanamide

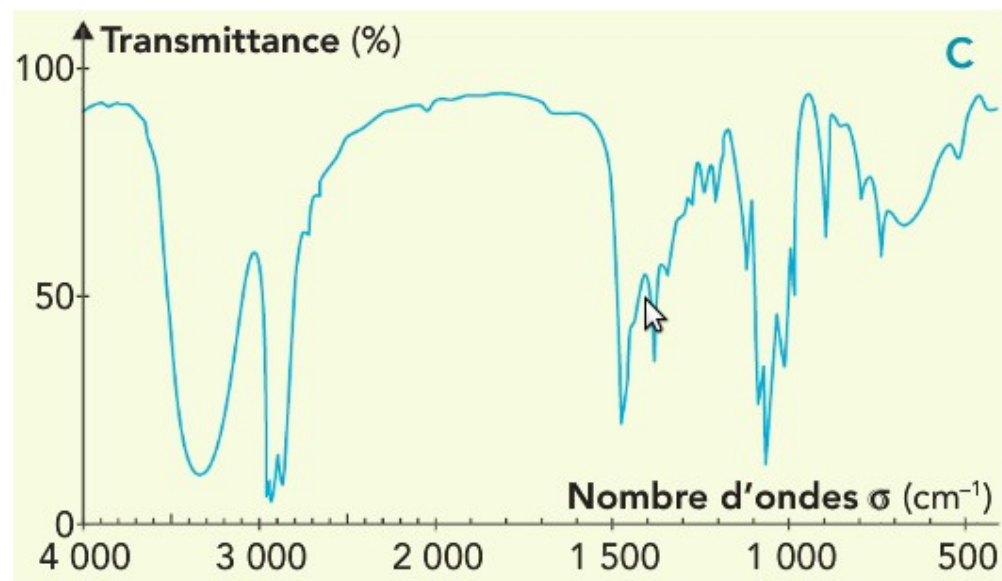


Illustration 3: pentan-1-ol

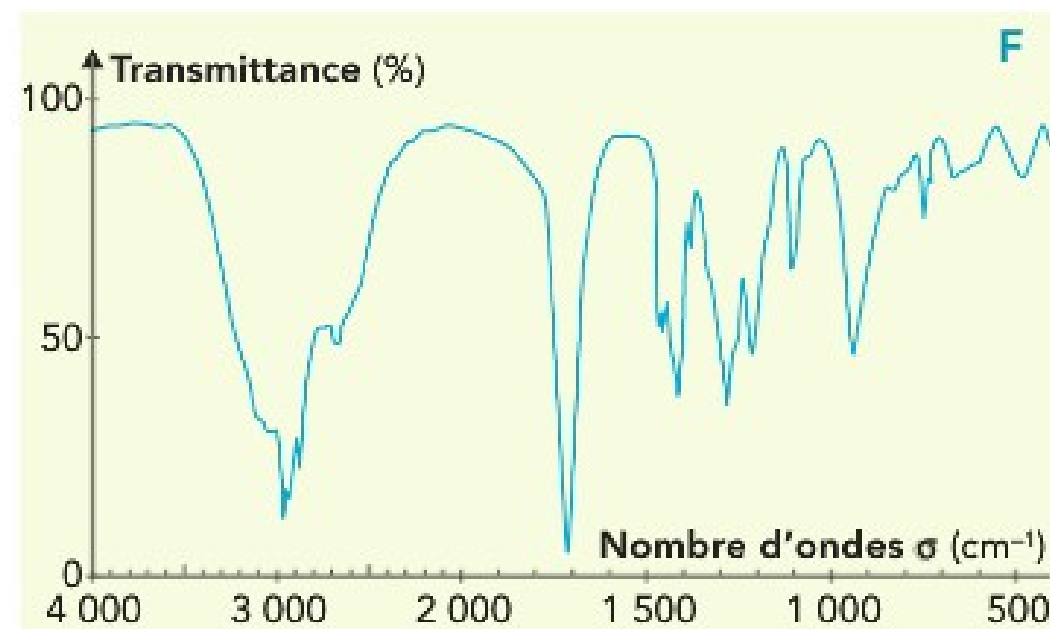


Illustration 4: acide pentanoïque

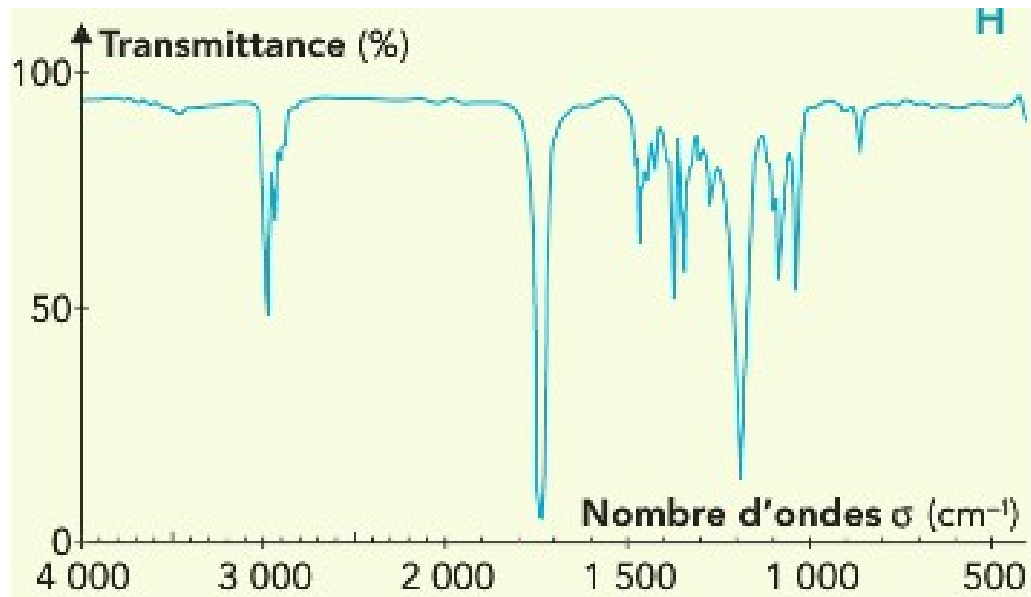


Illustration 5: propanoate d'éthyle

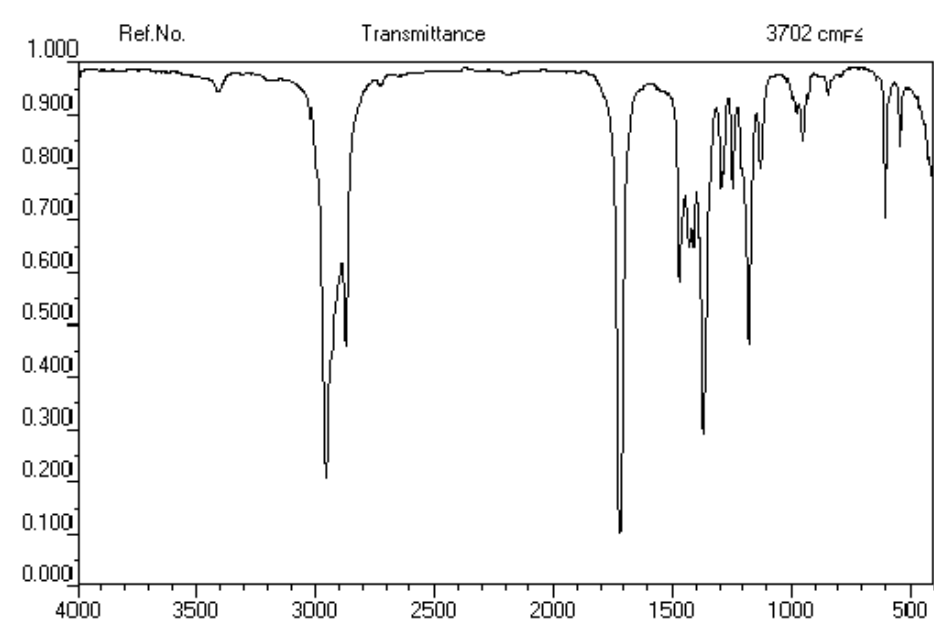


Illustration 6: 4-méthylpentan-2-one

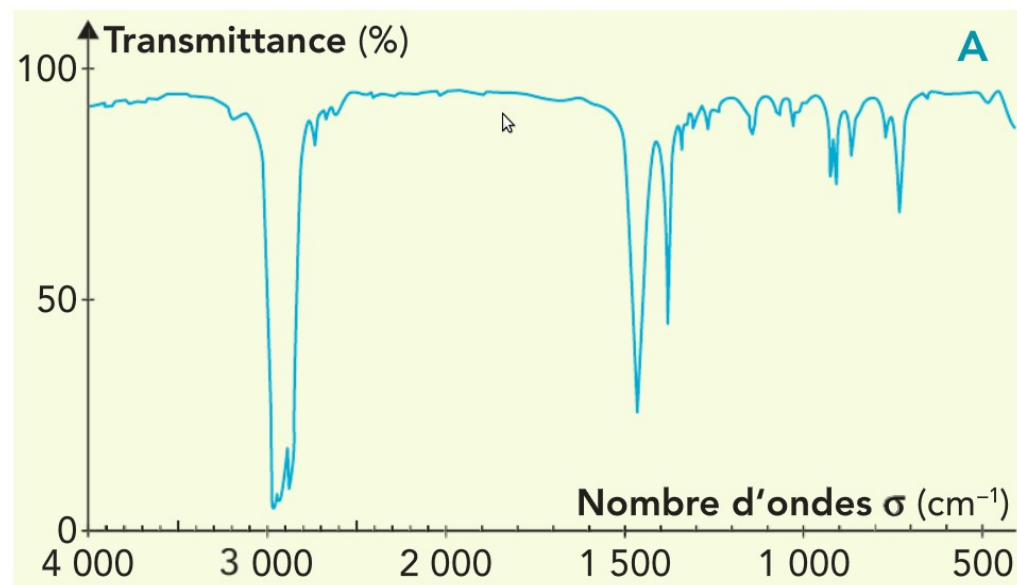


Illustration 7: pentane

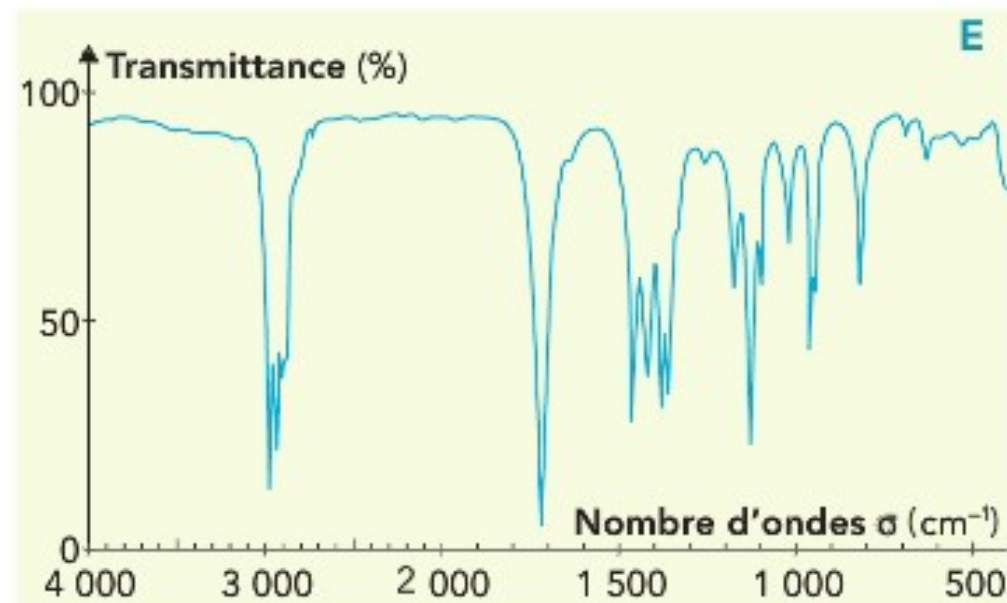


Illustration 8: pentan-3-one

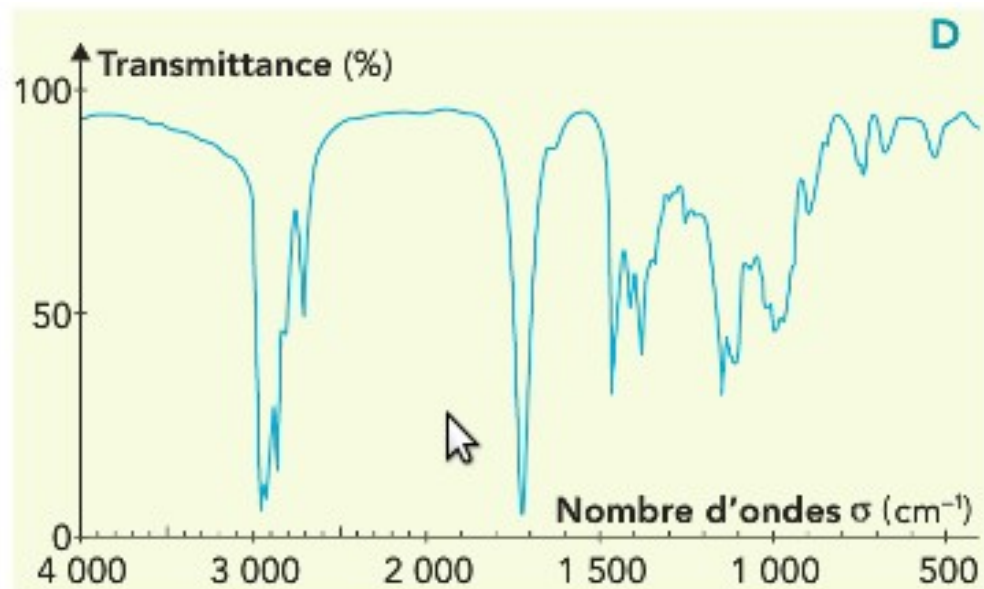


Illustration 9: pentanal

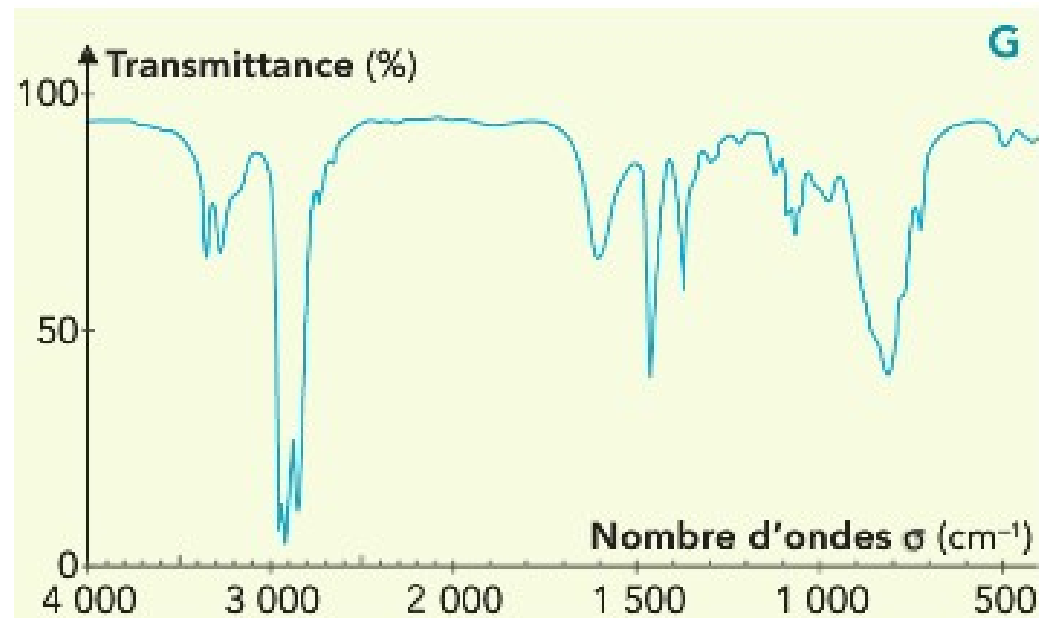


Illustration 10: pentan-1-amine

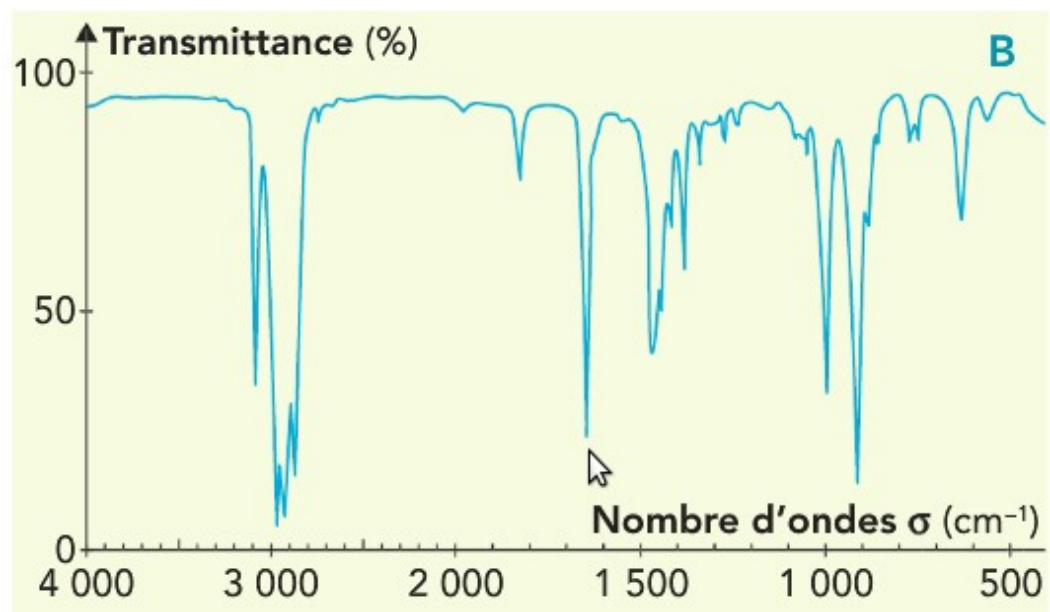


Illustration 11: pent-1-ène