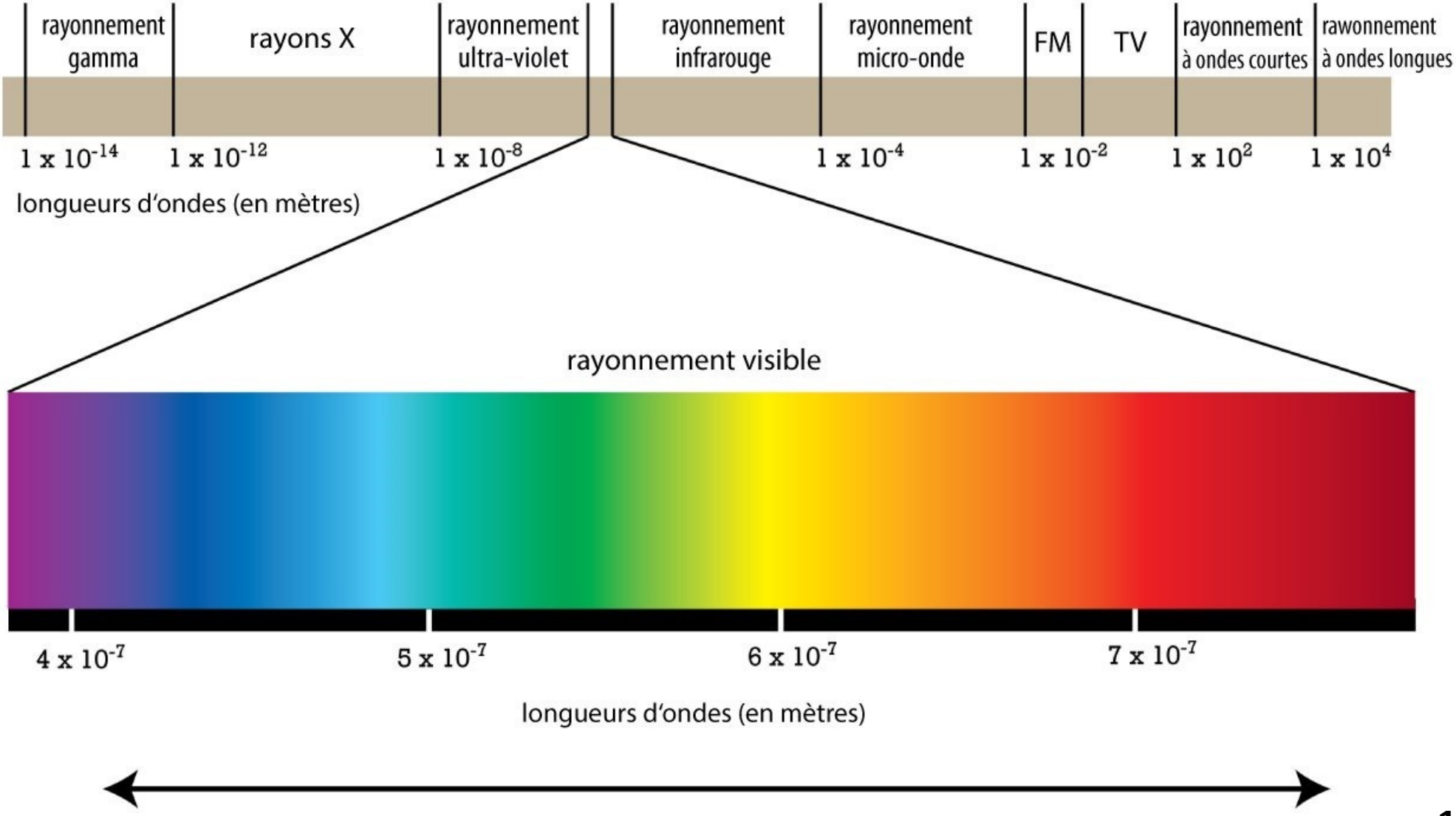
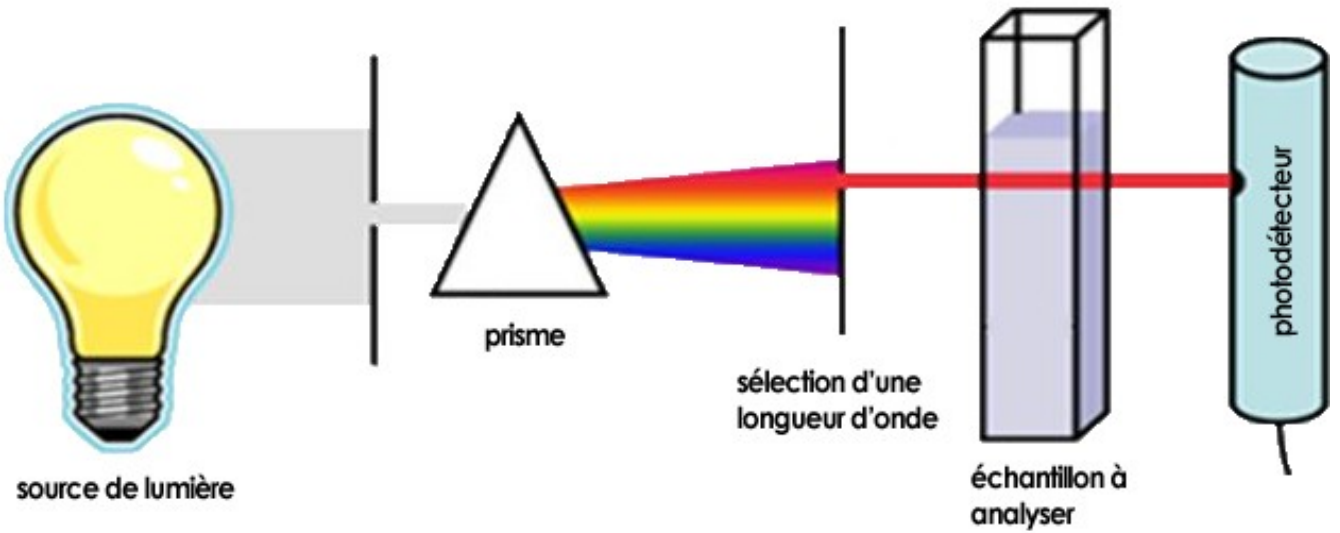
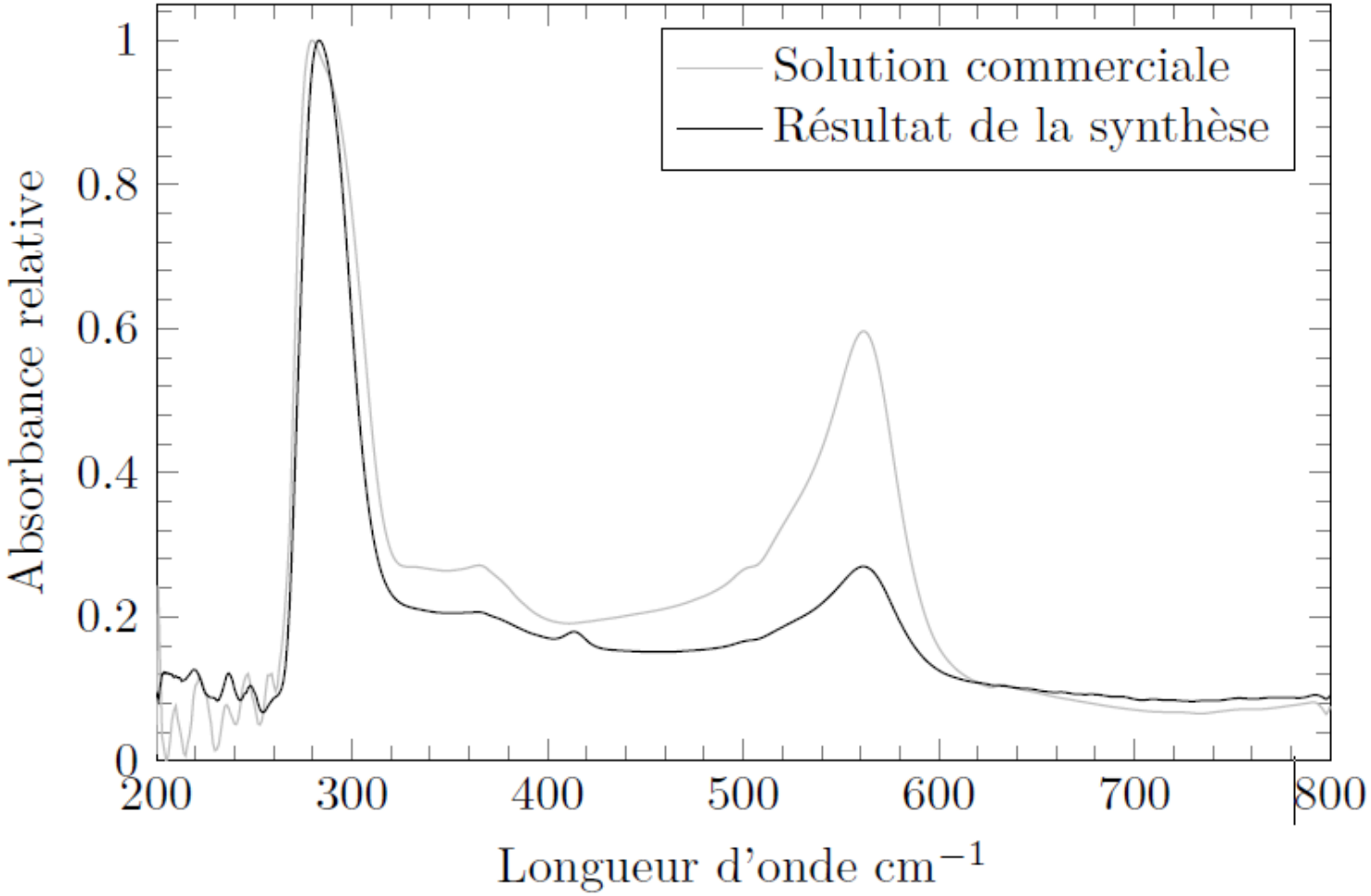

rayonnement gamma
rayons X
rayonnement ultra-violet
rayonnement infrarouge
rayonnement micro-onde
FM
TV
rayonnement à ondes courtes
rawonnement à ondes longues
1 x 10-14
1 x 10-12
1 x 10-8
1 x 10-4
1 x 10-2
1 x 102
1 x 104
longueurs d'ondes (en mètres)
rayonnement visible
4 x 10-7
5 x 10-7
6 x 10-7
7 x 10-7
longueurs d'ondes (en mètres)

Fonctionnement d’un spectrophotomètre

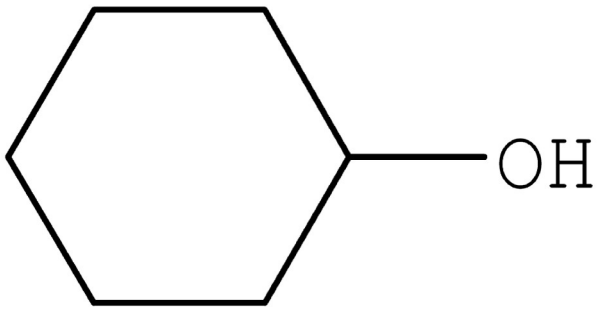


Cercle chromatique

Spectre UV-visible de la phénolphtaléine



Cyclohexanol



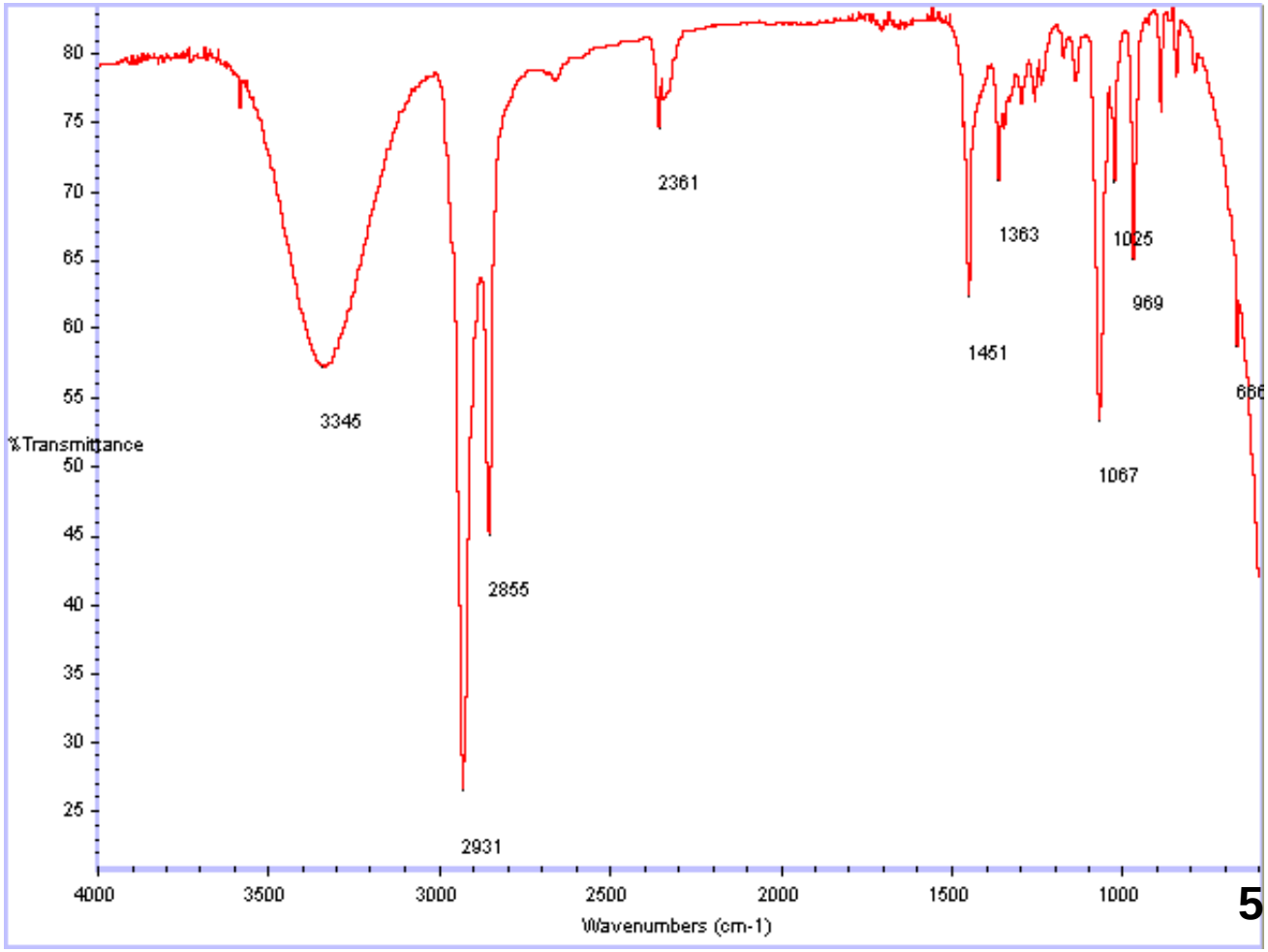


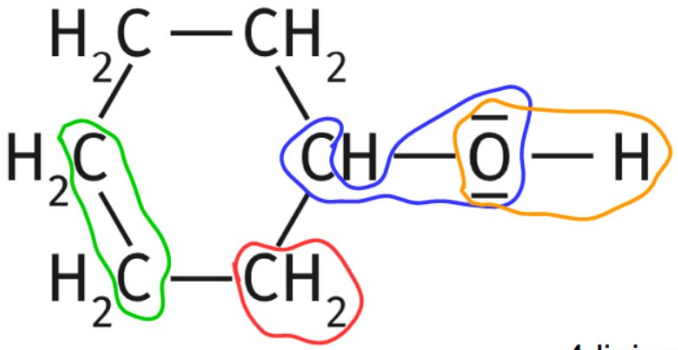
Table des bandes des spectres IR

Liaison	Nombre d'onde σ (cm^{-1})	Intensité[1]
O—H libre [2]	3580 - 3650	Forte ; fine
O—H lié [2]	3200 - 3400	Forte ; large
N—H	3100 - 3500	Moyenne
C_{tri}—H [3]	3000 - 3100	Moyenne
C_{tri}—H aromat. [4]	3030 - 3080	Moyenne
$C_{tét}$—H [5]	2800 - 3000	Forte
$C_{tét}$—H aldéhyde	2750 - 2900	Moyenne
O—H acide carb.	2500 - 3200	Forte ; large

Liaison	Nombre d'onde σ (cm^{-1})	Intensité[1]
C=O ester	1700 - 1740	Forte
C=O aldéh. cétone	1650 - 1730	Forte
C=O acide	1680 - 1710	Forte
C=C	1625 - 1685	Moyenne
C=C aromat.	1450 - 1600	Moyenne
$C_{tét}$—H	1415 - 1470	Forte
$C_{tét}$—O	1050 - 1450	Forte
$C_{tét}$—$C_{tét}$	1000 - 1250	Forte

Application au cyclohexanol

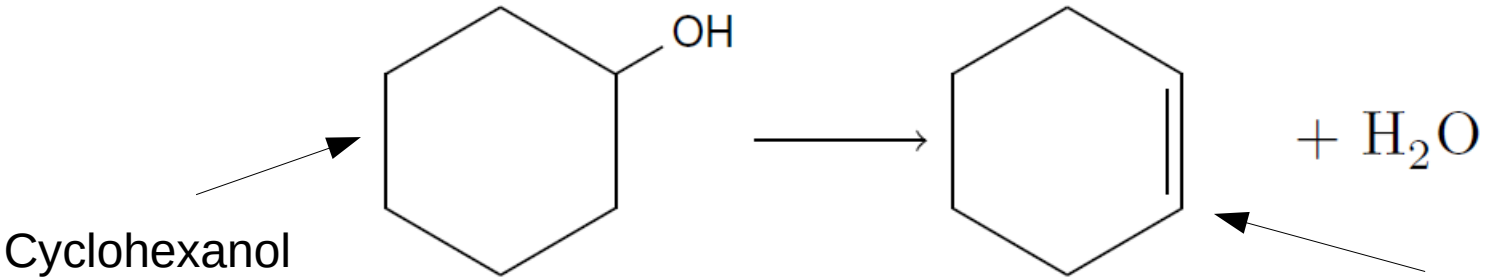
Liaison	Nombre d'onde σ (cm^{-1})	Intensité[1]
O—H libre [2]	3580 - 3650	Forte ; fine
O—H lié [2]	3200 - 3400	Forte ; large
N—H	3100 - 3500	Moyenne
C_{tri}—H [3]	3000 - 3100	Moyenne
C_{tri}—H aromat. [4]	3030 - 3080	Moyenne
$C_{tét}$—H [5]	2800 - 3000	Forte
$C_{tét}$—H aldéhyde	2750 - 2900	Moyenne
O—H donc carb.	2500 - 3200	Forte ; large

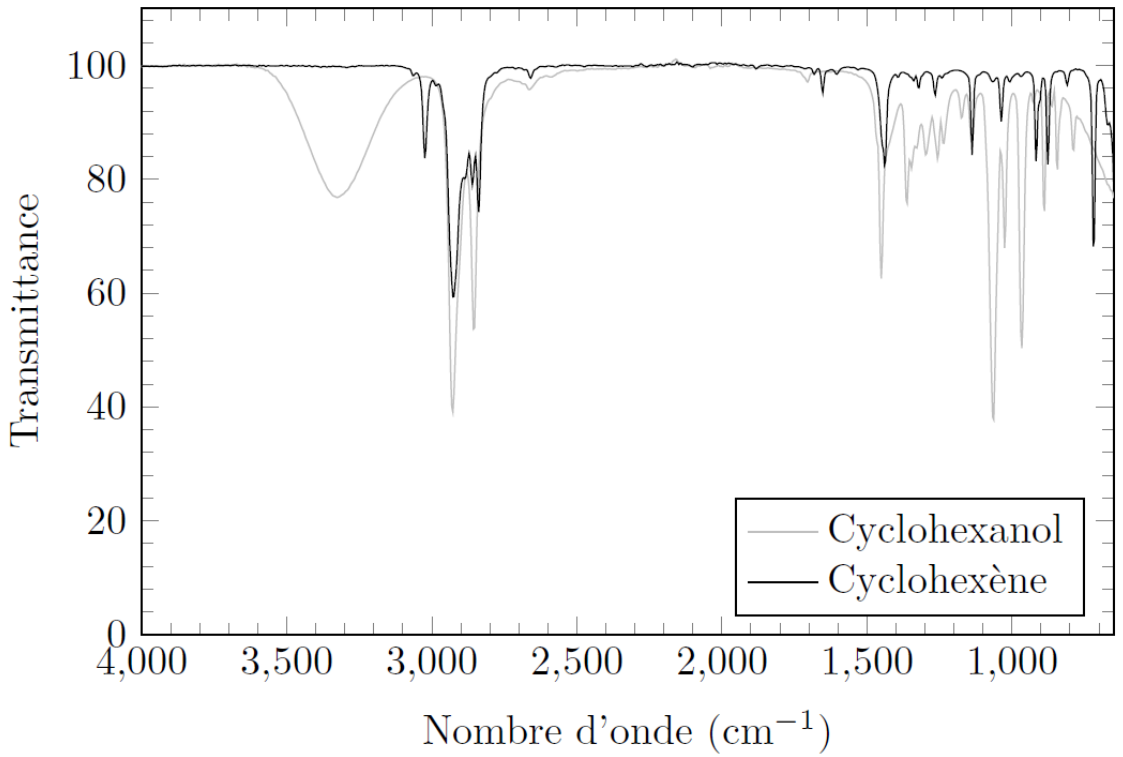


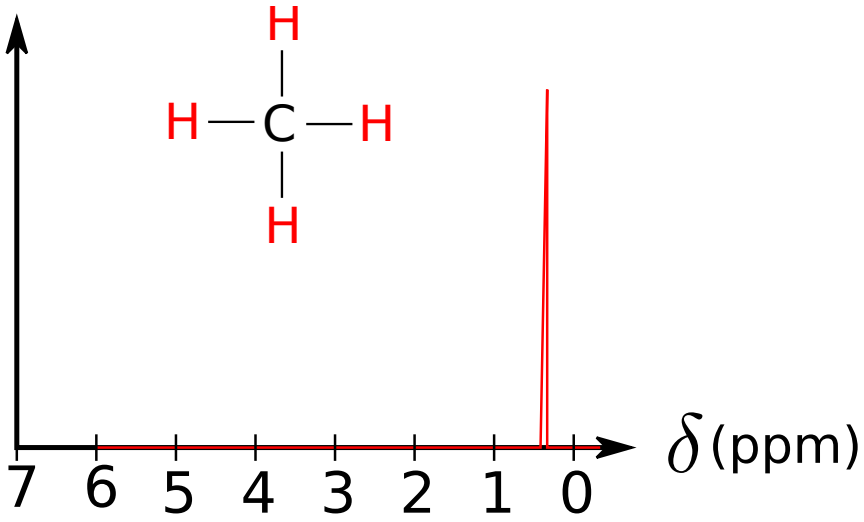
Cyclohexanol

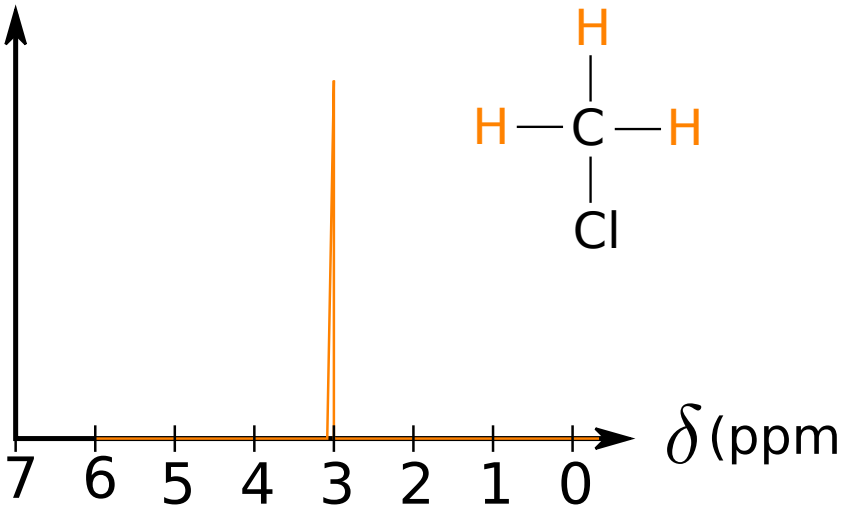
4 liaisons différentes :
- C-C
- C-H
- C-O
- O-H

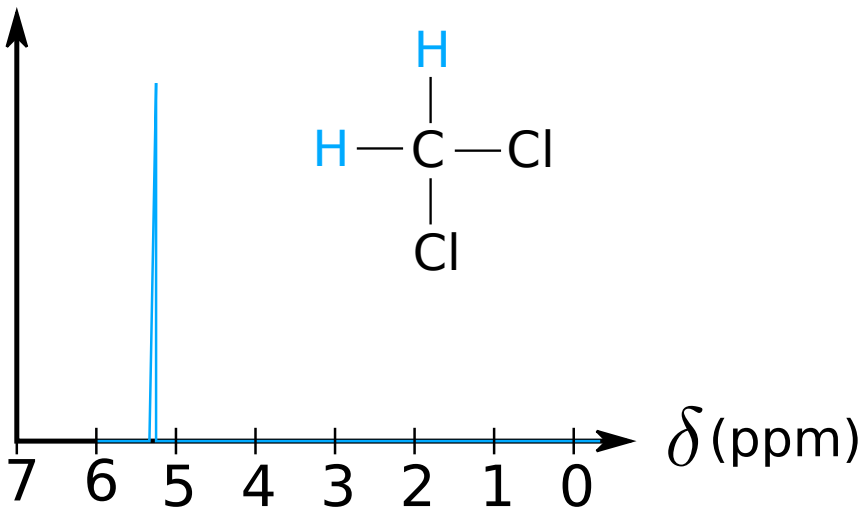
$C_{tét}$—O	1050 - 1450	Forte
$C_{tét}$—$C_{tét}$	1000 - 1250	Forte

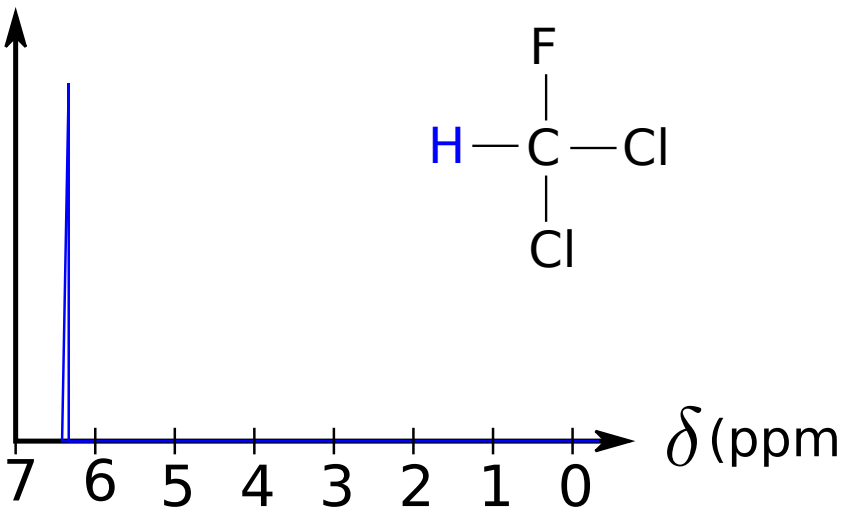

OH
+ H_2O
Cyclohexanol
Cyclohexène

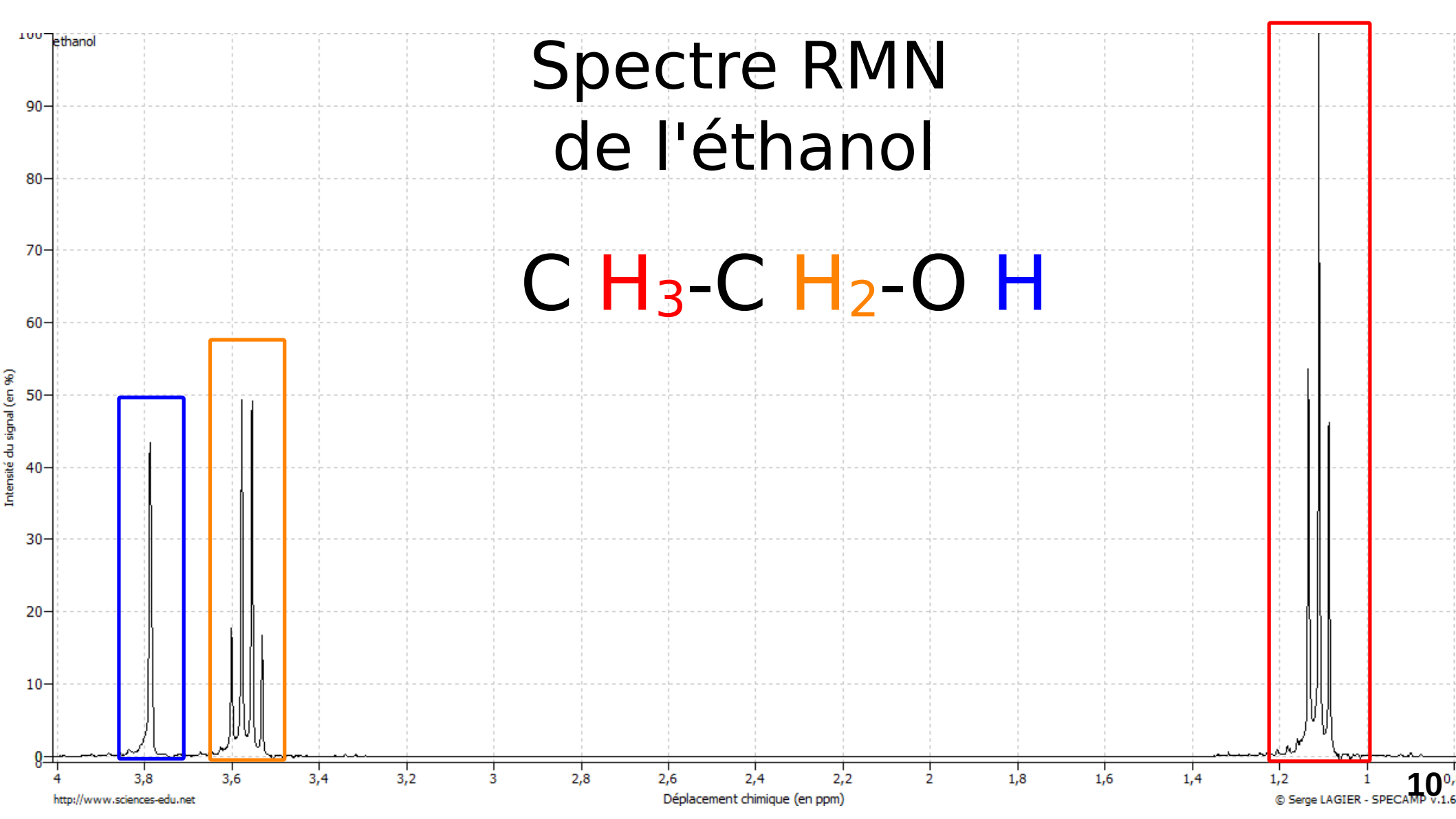

Transmittance
100
80
60
40
20
0
4,000
3,500
3,000
2,500
2,000
1,500
1,000
Nombre d'onde (cm^{-1})
Cyclohexanol
Cyclohexène


H
H C H
H
7 6 5 4 3 2 1 0
δ (ppm)


H
H C H
Cl
7 6 5 4 3 2 1 0
δ (ppm


H
H C Cl
Cl
7 6 5 4 3 2 1 0
δ (ppm)


F
H C Cl
Cl
7 6 5 4 3 2 1 0
δ (ppm


ethanol
Spectre RMN
de l'éthanol
C H3-C H2-O H
Intensité du signal (en %)
Déplacement chimique (en ppm)
http://www.sciences-edu.net
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