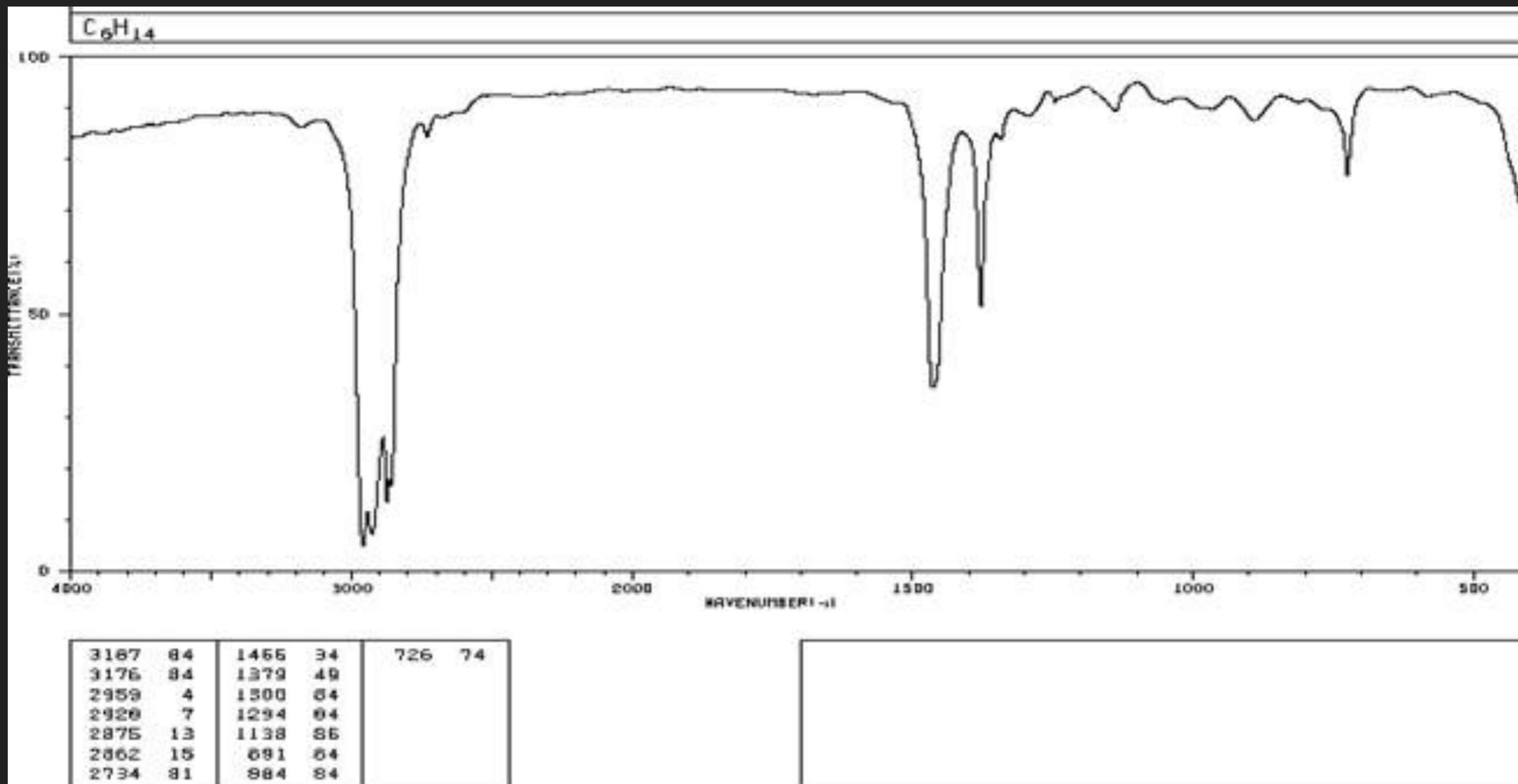


ESERCIZI DI SPETTROSCOPIA IR

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# LEZIONE 10

# SPETTRO 1

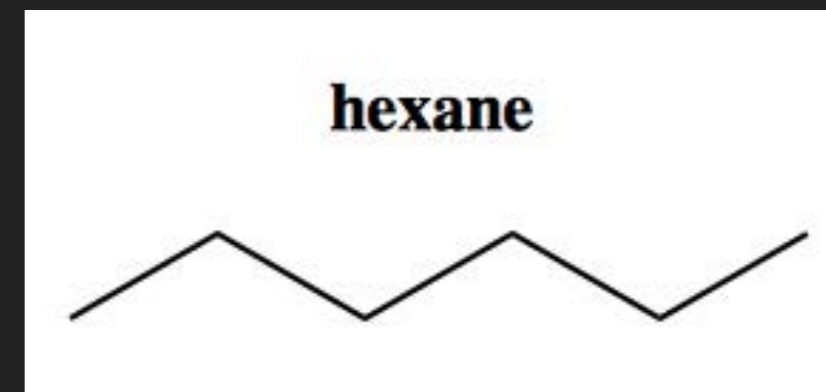


# SOLUZIONE

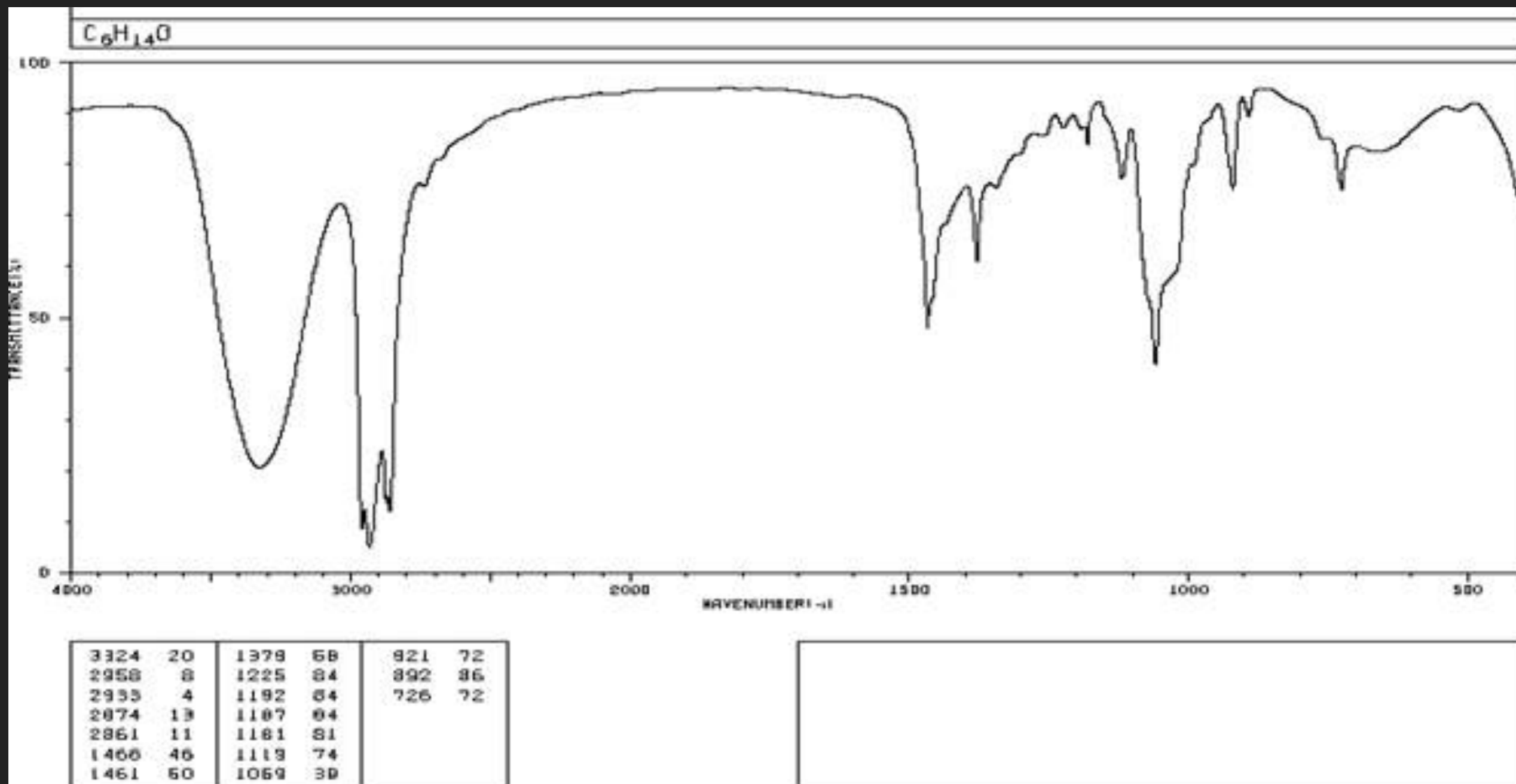
2900: stretching C-H

1460: bending  $\text{CH}_2$  e bending asimmetrico  $\text{CH}_3$

1380: bending simmetrico C-H



# SPETTRO 2



## SOLUZIONE

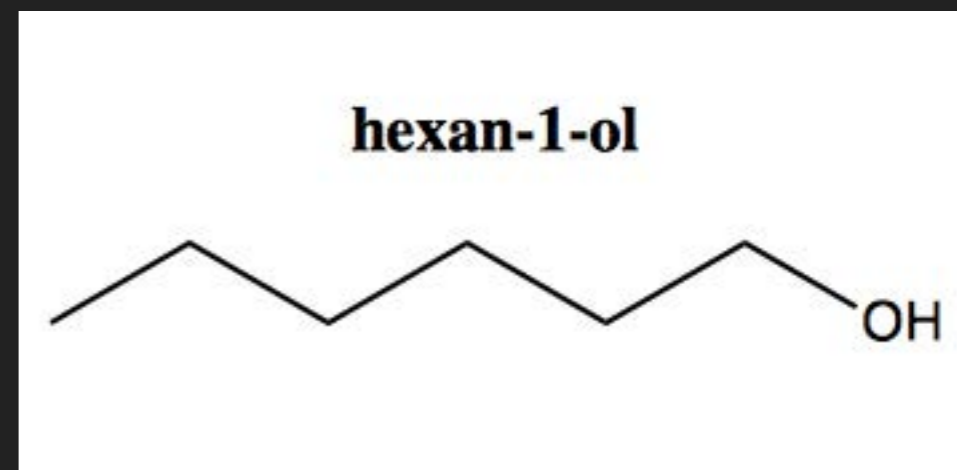
3330: stretching O-H

1060: stretching C-O

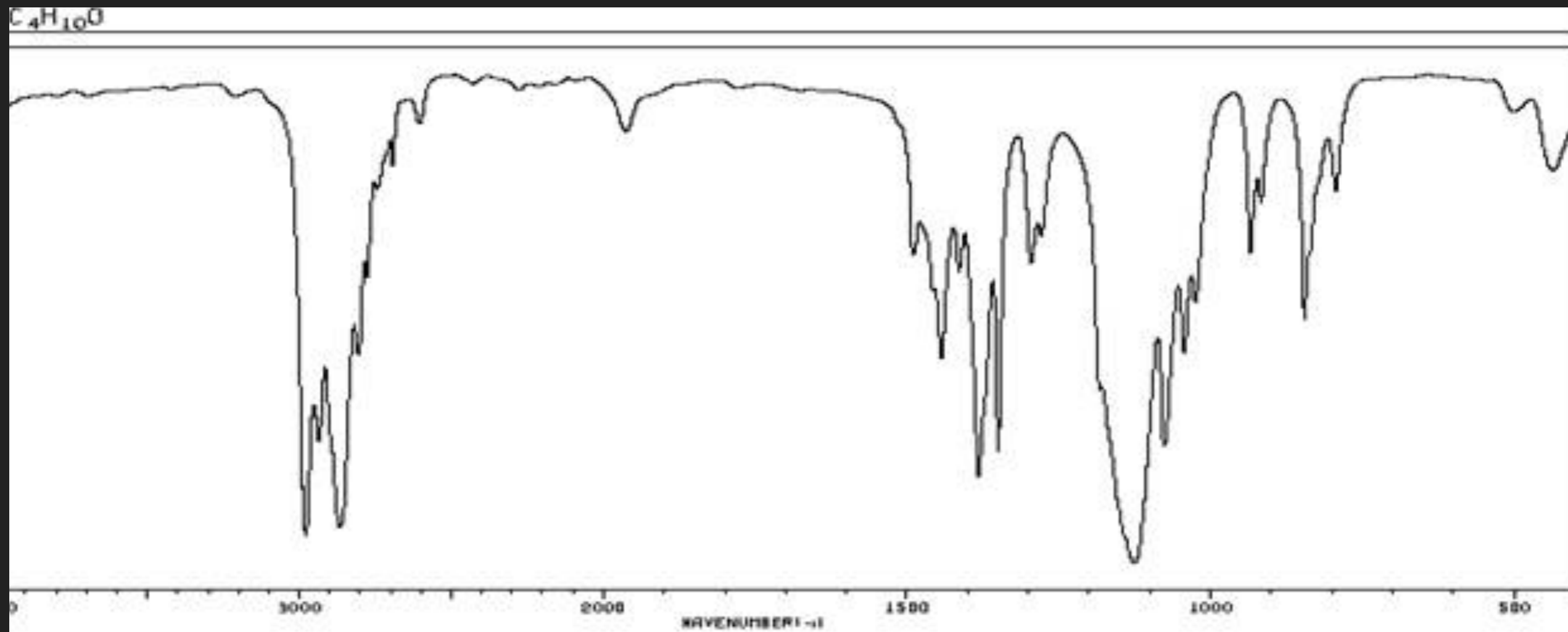
3000: stretching C-H

1470: bending  $\text{CH}_2$  e bending  
asimmetrico  $\text{CH}_3$

1378: bending simmetrico  $\text{CH}_3$



# SPETTRO 3



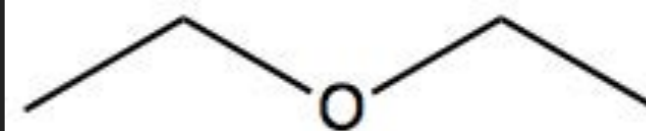
|      |    |      |    |      |    |      |    |
|------|----|------|----|------|----|------|----|
| 2989 | 17 | 2693 | 74 | 1389 | 20 | 1024 | 50 |
| 2979 | 9  | 2604 | 81 | 1351 | 24 | 935  | 58 |
| 2935 | 26 | 1962 | 81 | 1297 | 56 | 917  | 68 |
| 2868 | 10 | 1490 | 68 | 1279 | 82 | 846  | 47 |
| 2804 | 41 | 1457 | 58 | 1126 | 4  | 794  | 70 |
| 2777 | 55 | 1444 | 41 | 1077 | 25 | 501  | 64 |
| 2743 | 70 | 1416 | 67 | 1043 | 42 | 438  | 74 |

# SOLUZIONE

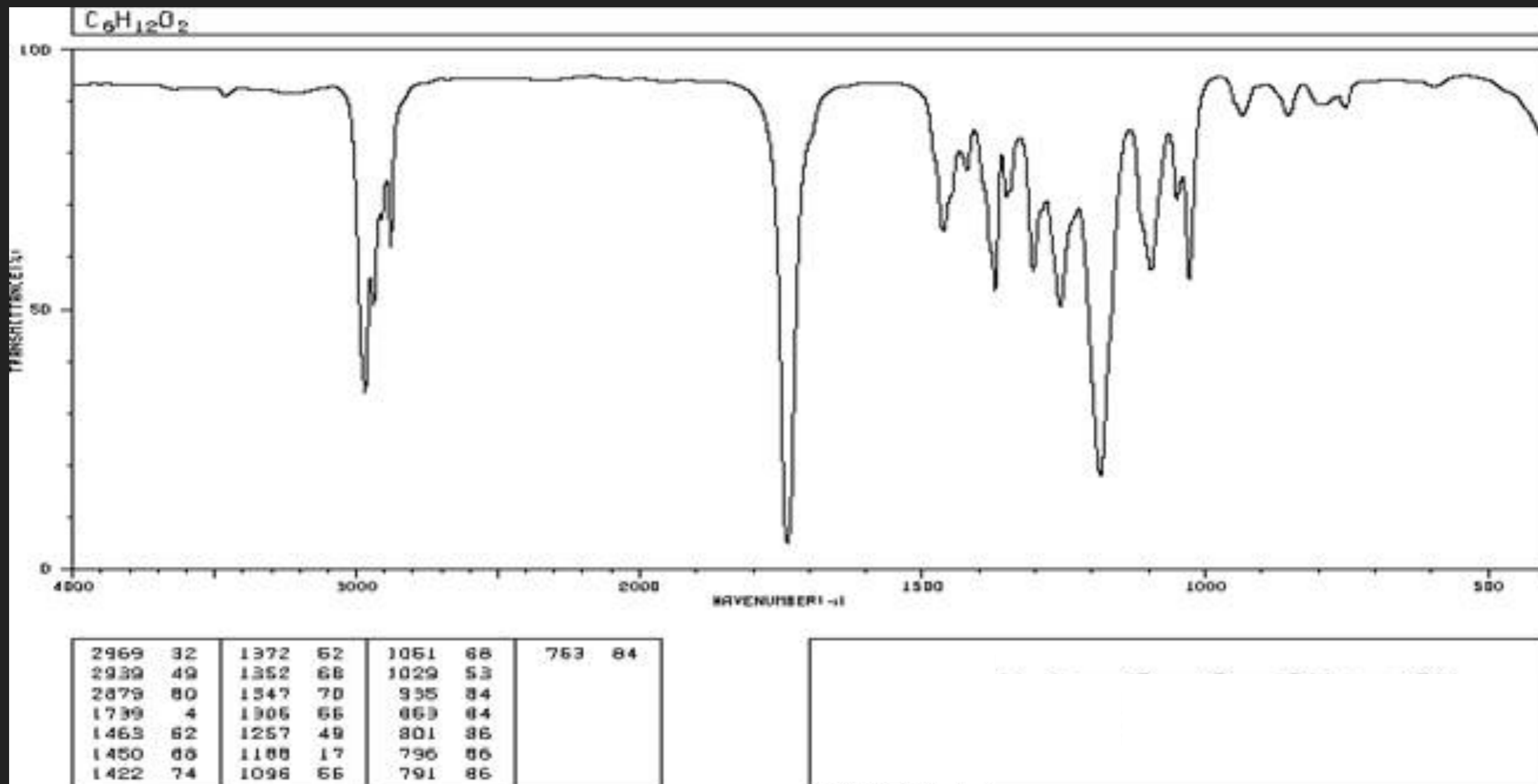
2989/2804: stretching C-H

1125: stretching C-O

**diethyl ether**



# SPETTRO 4

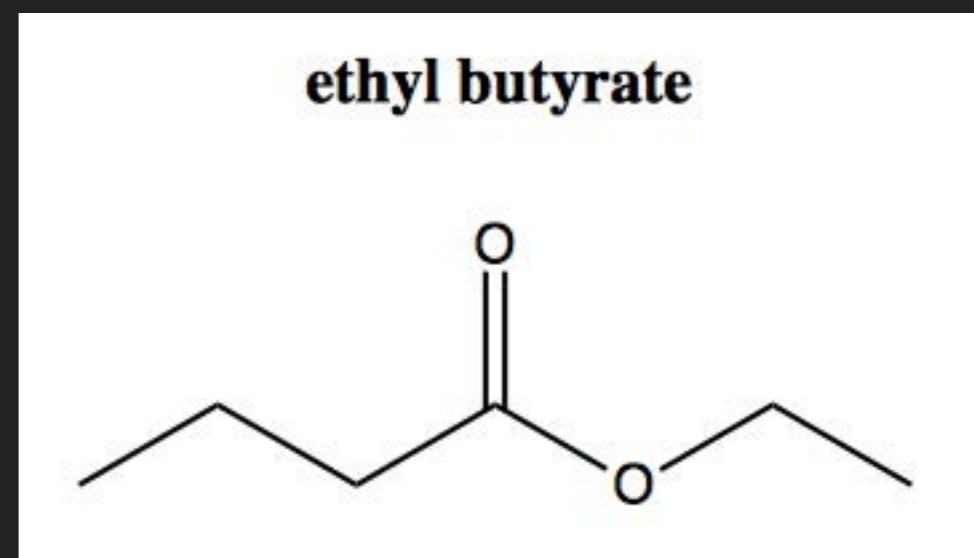




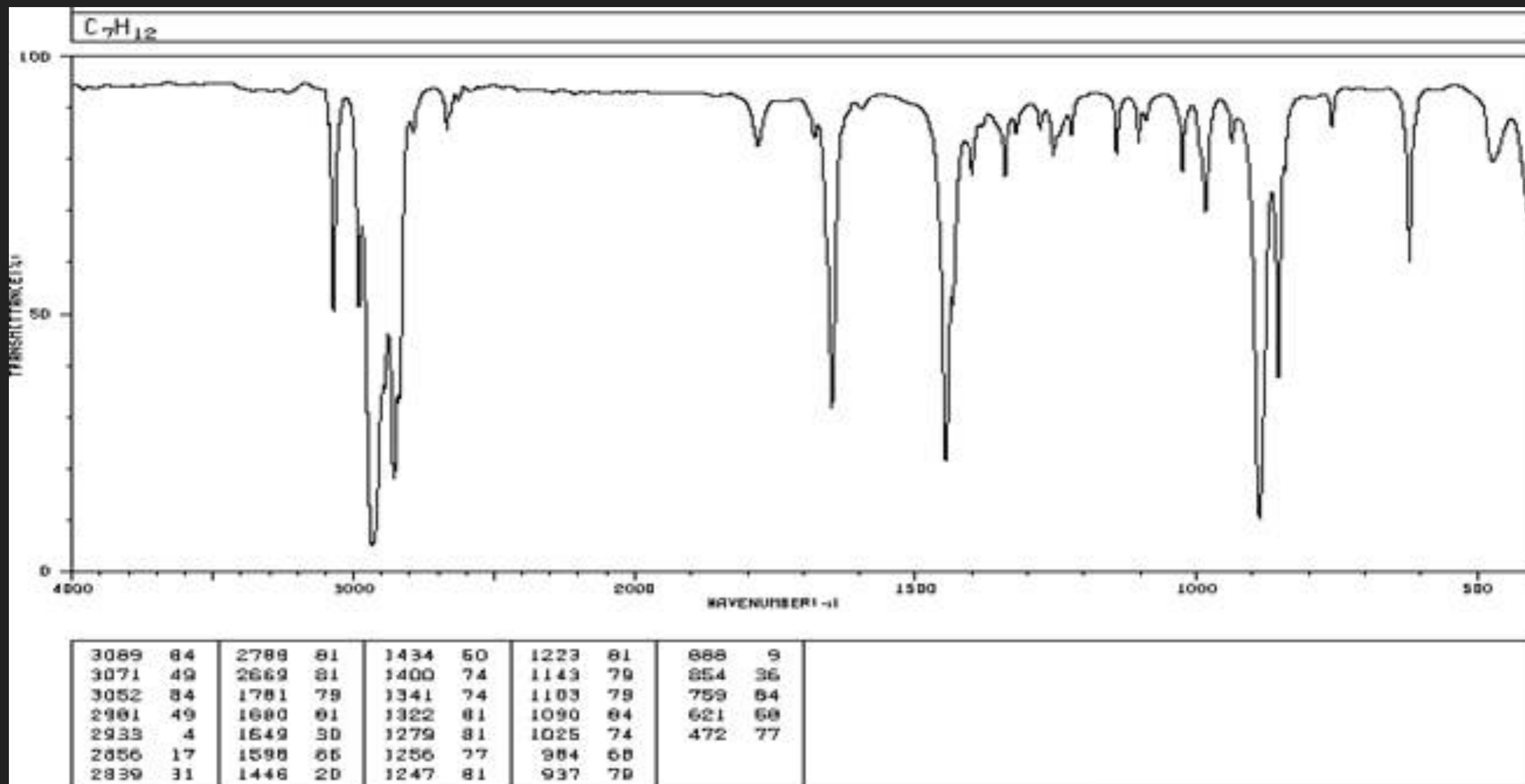
# SOLUZIONE

1730: stretching C=O

1180: stretching C-O



# SPETTRO 5



## SOLUZIONE

2900: stretching C-H alchilici

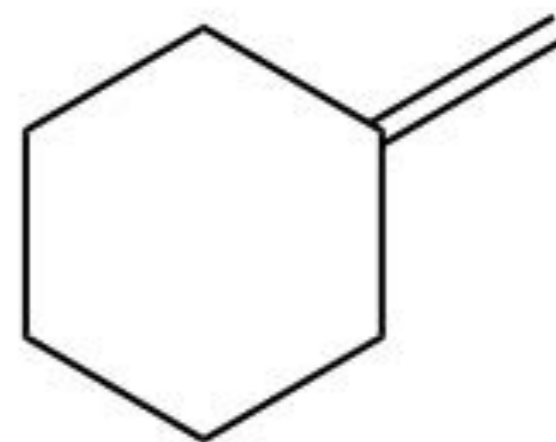
3100: stretching C-H vinilici

1650: stretching C=C

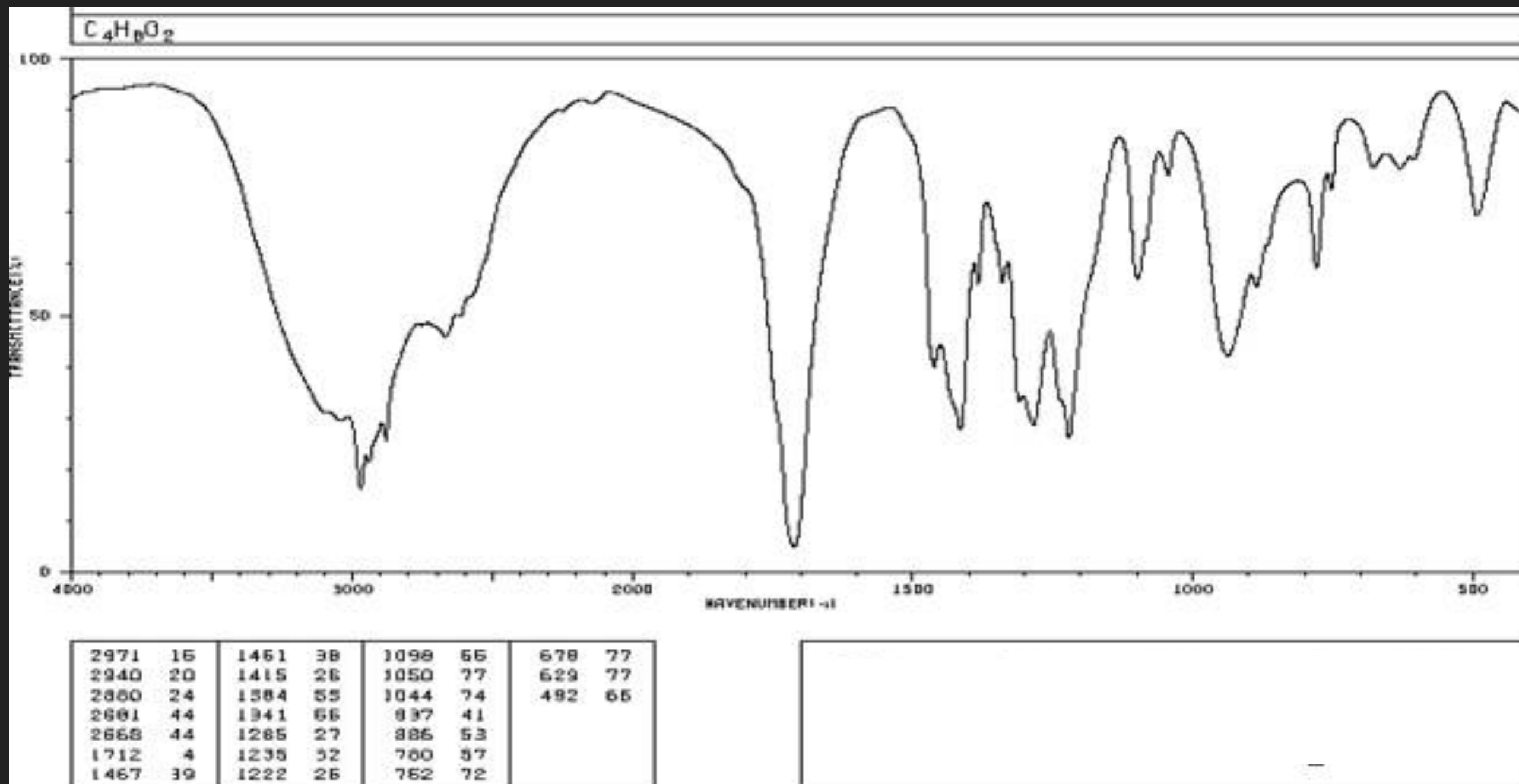
1450: bending C-H

900: bending C-H vinilici

**methylen cyclohexane**



# SPETTRO 6

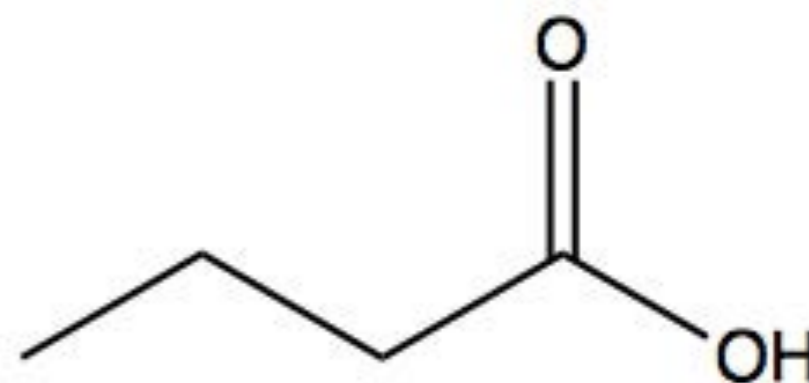


# SOLUZIONE

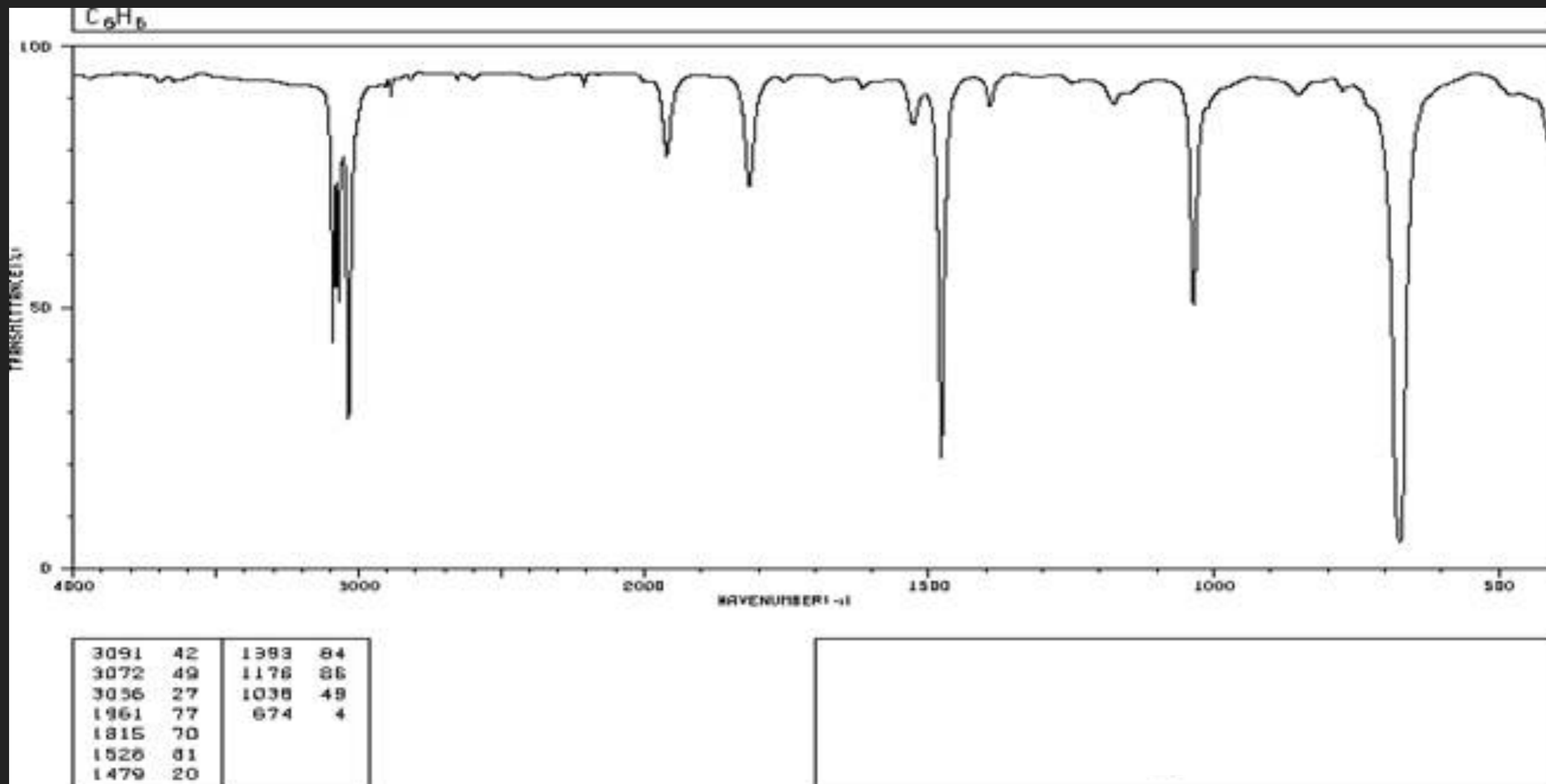
2500/3600: O-H acido

1710: stretching C=O

**butyric acid**



# SPETTRO 7



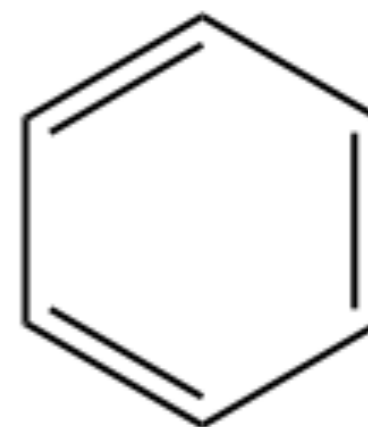
# SOLUZIONE

3000/3100: stretching C-H

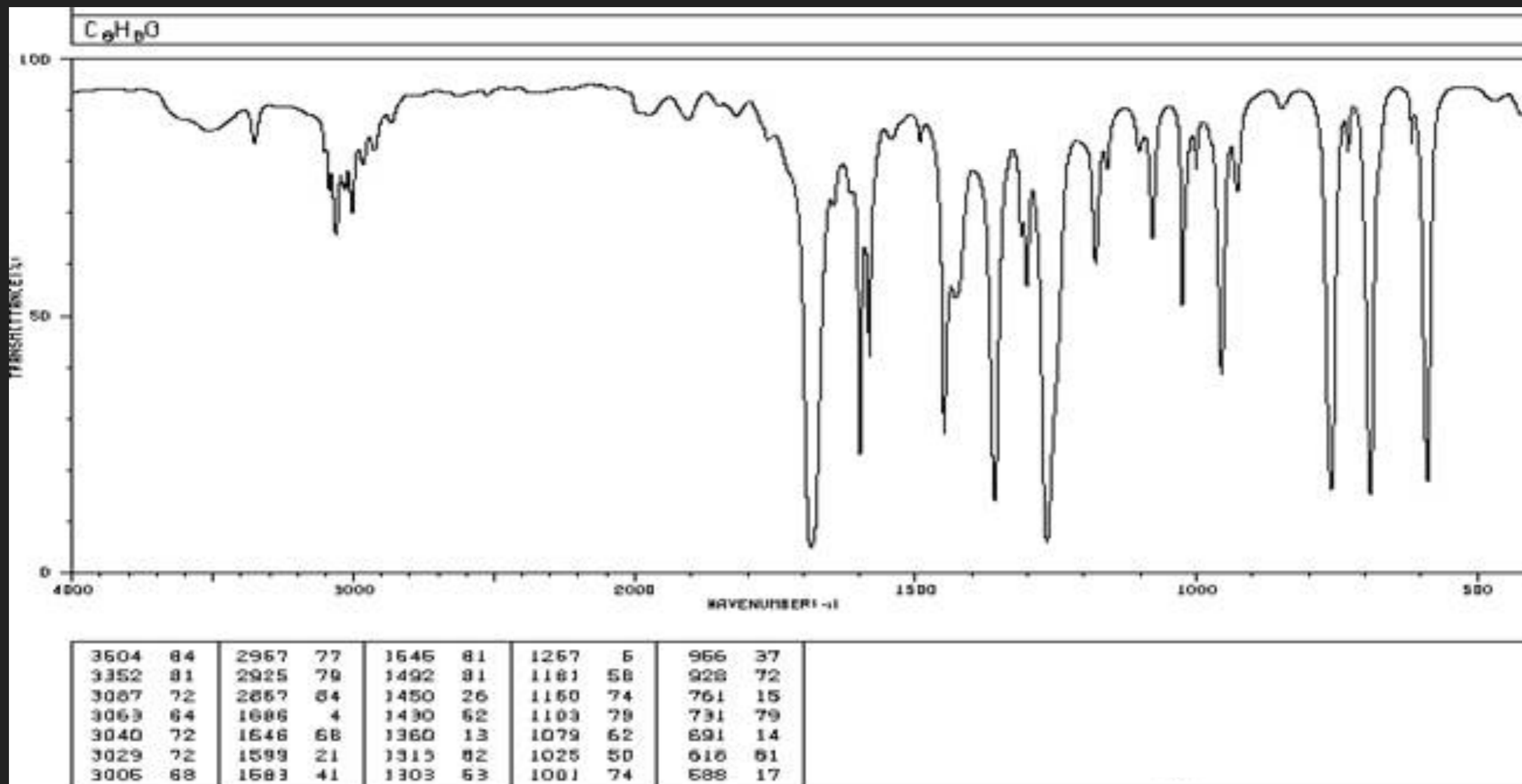
1500: stretching C=C

2000/1800: assorbimenti armonici di  
bending scheletro a 1000/500

**benzene**



# SPETTRO 8





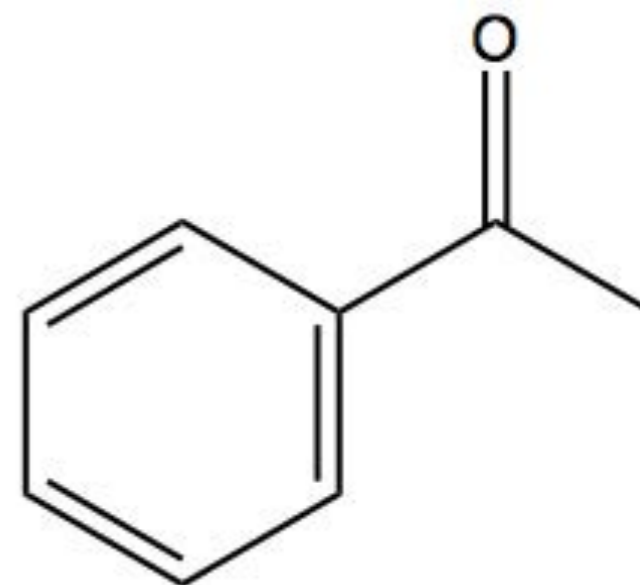
## SOLUZIONE

3000: stretching C-H aromatici e alifatici

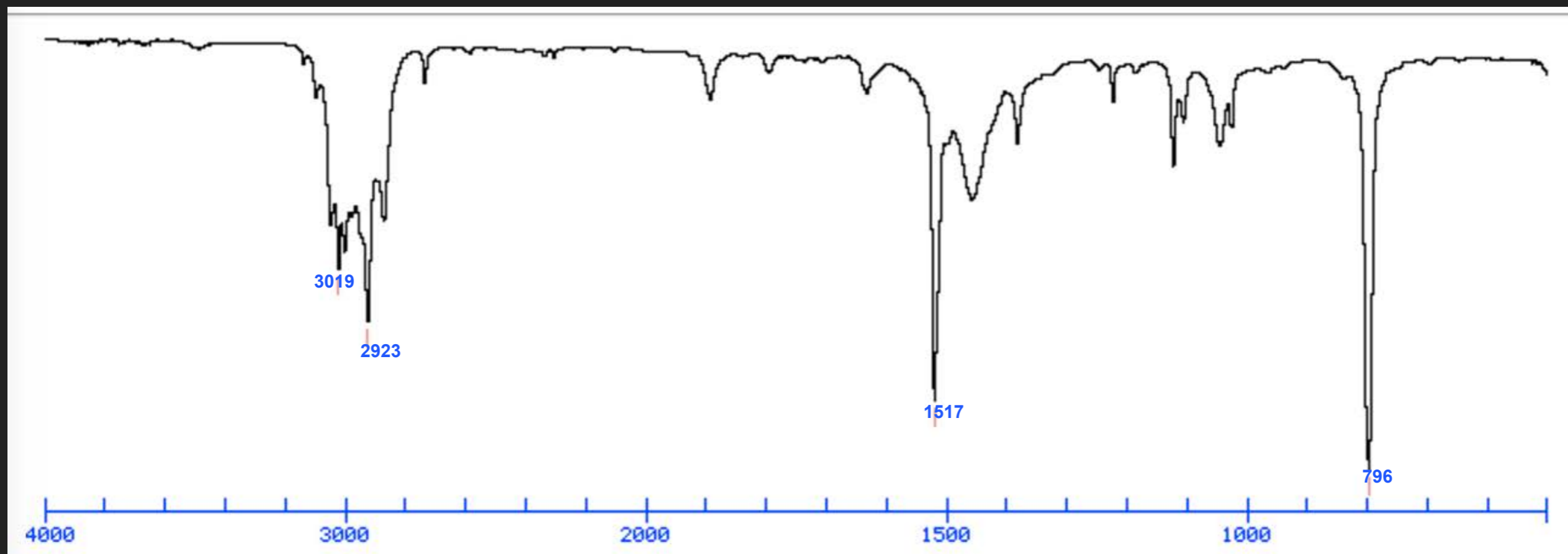
1700: stretching C=O

1450 e 1600: stretching C=C

**acetophenone**



# SPETTRO 9

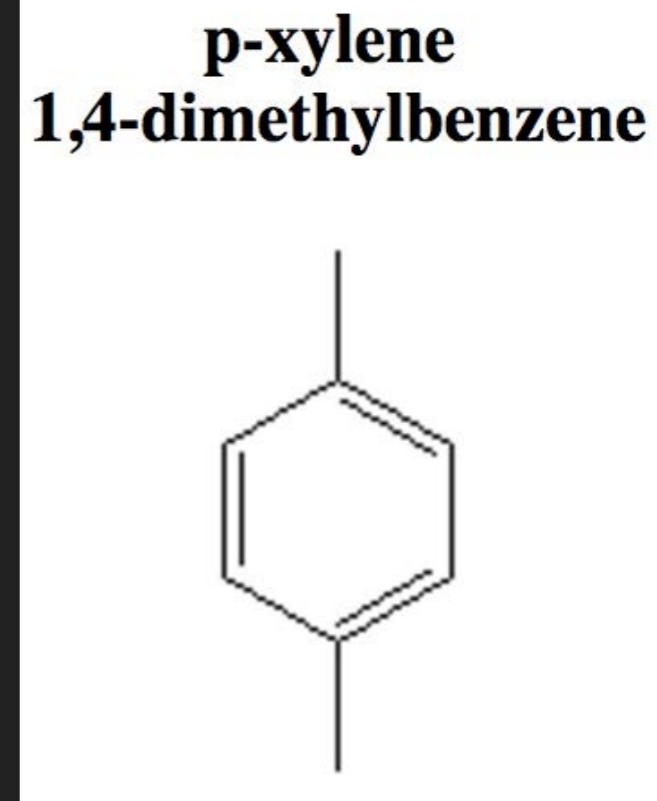


# SOLUZIONE

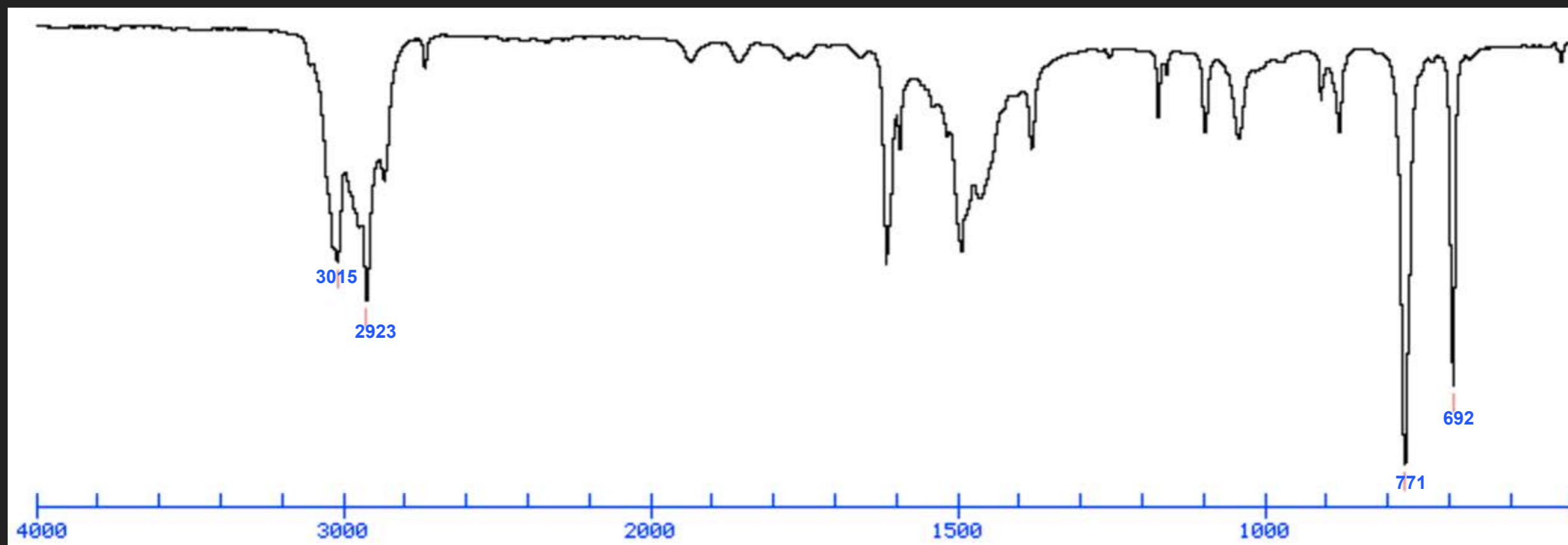
2923 e 3019: stretching C-H

1517: stretching C-C

796: bending C-C aromatici (para)



# SPETTRO 10

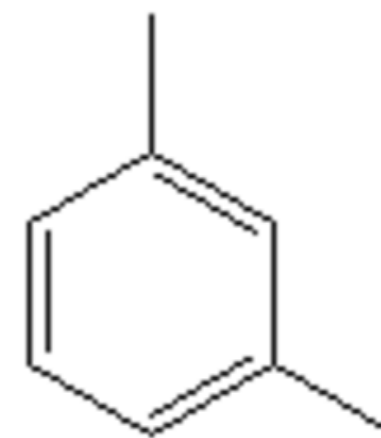


# SOLUZIONE

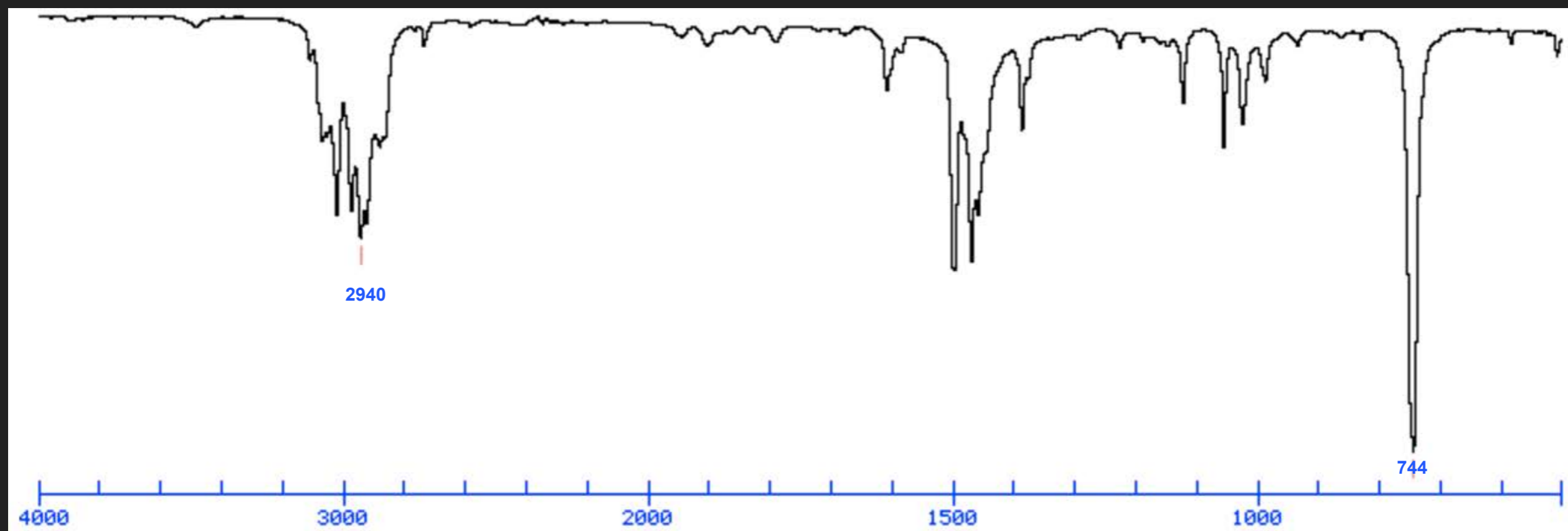
2923 e 3015: stretching C-H

692 e 771: bending C-C aromatici (meta)

**m-xylene**  
**1,3-dimethylbenzene**



# SPETTRO 11

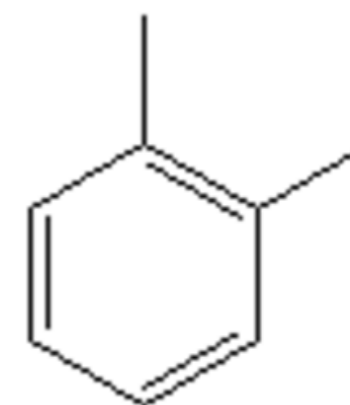


# SOLUZIONE

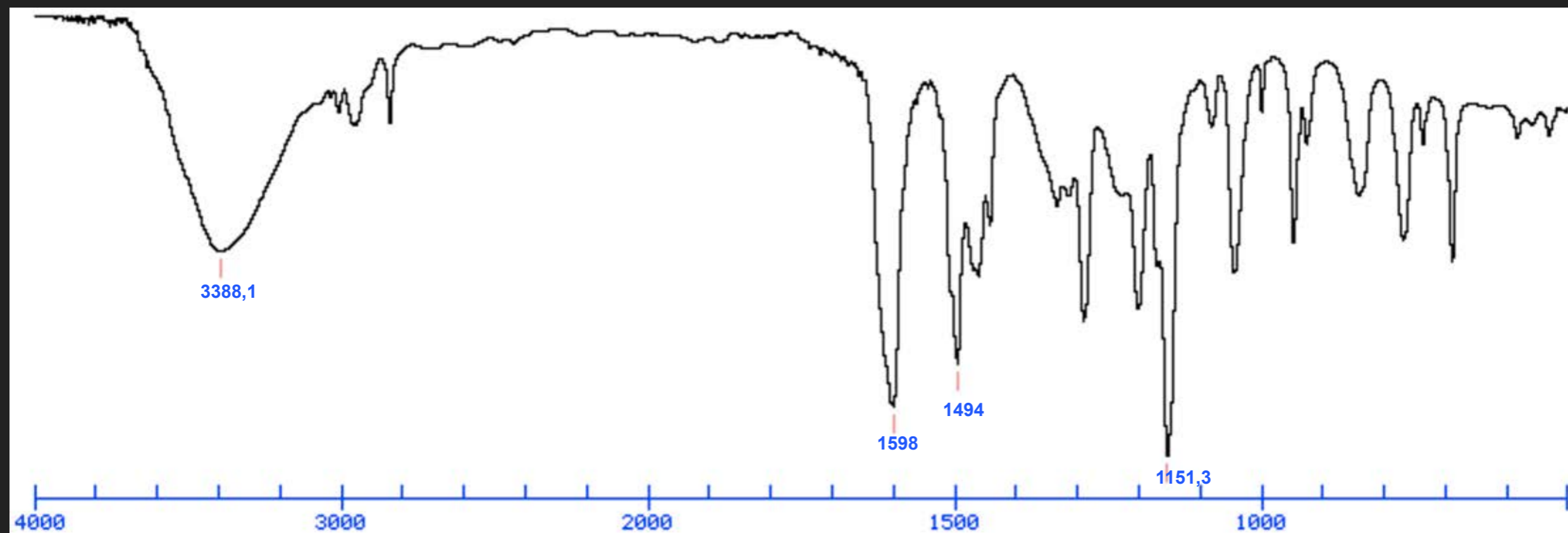
2940: stretching C-H

744: bending C-C aromatici (orto)

**o-xylene**  
**1,2-dimethylbenzene**



# SPETTRO 12





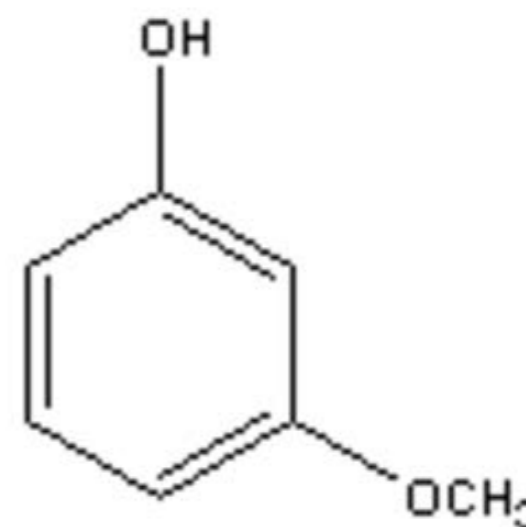
# SOLUZIONE

3388: stretching O-H

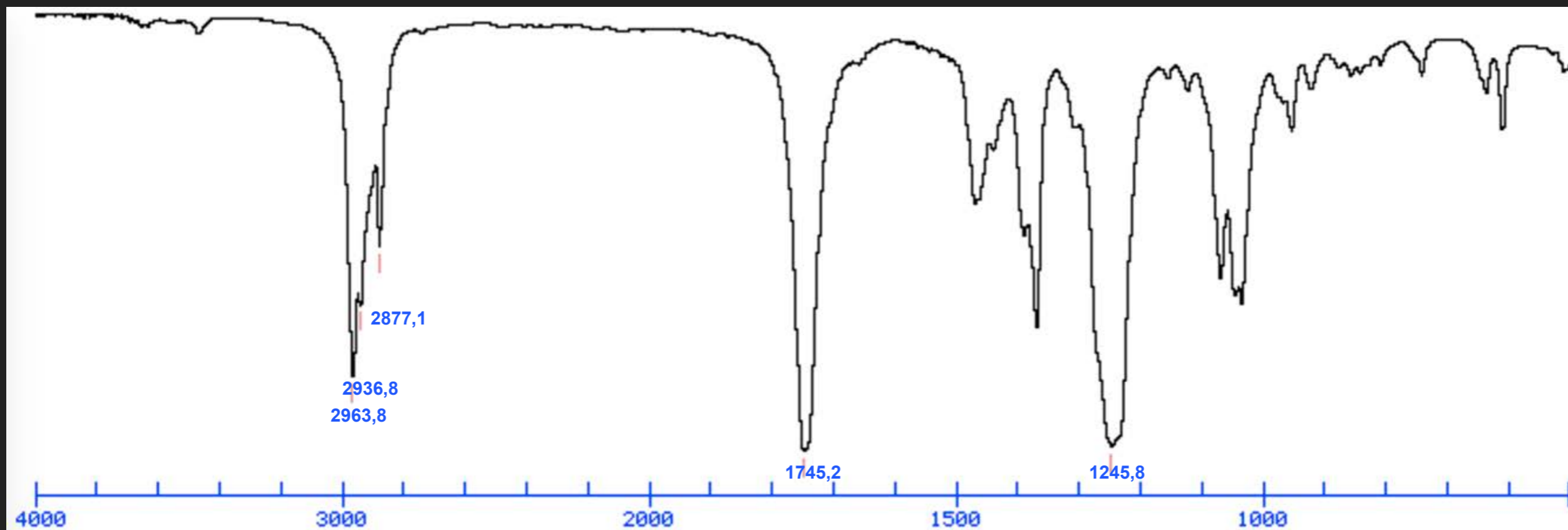
1494 e 1598: stretching C-C aromatici

1151,3: stretching C-O

**3-methoxyphenol**



# SPETTRO 13



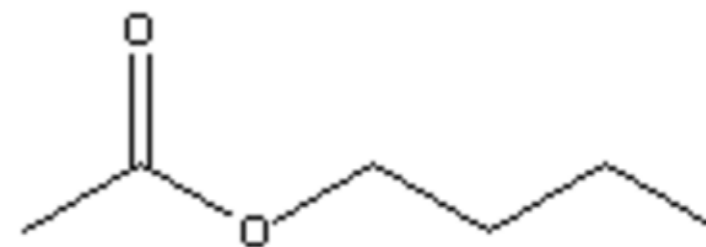
# SOLUZIONE

2963,8/2877: stretching C-H

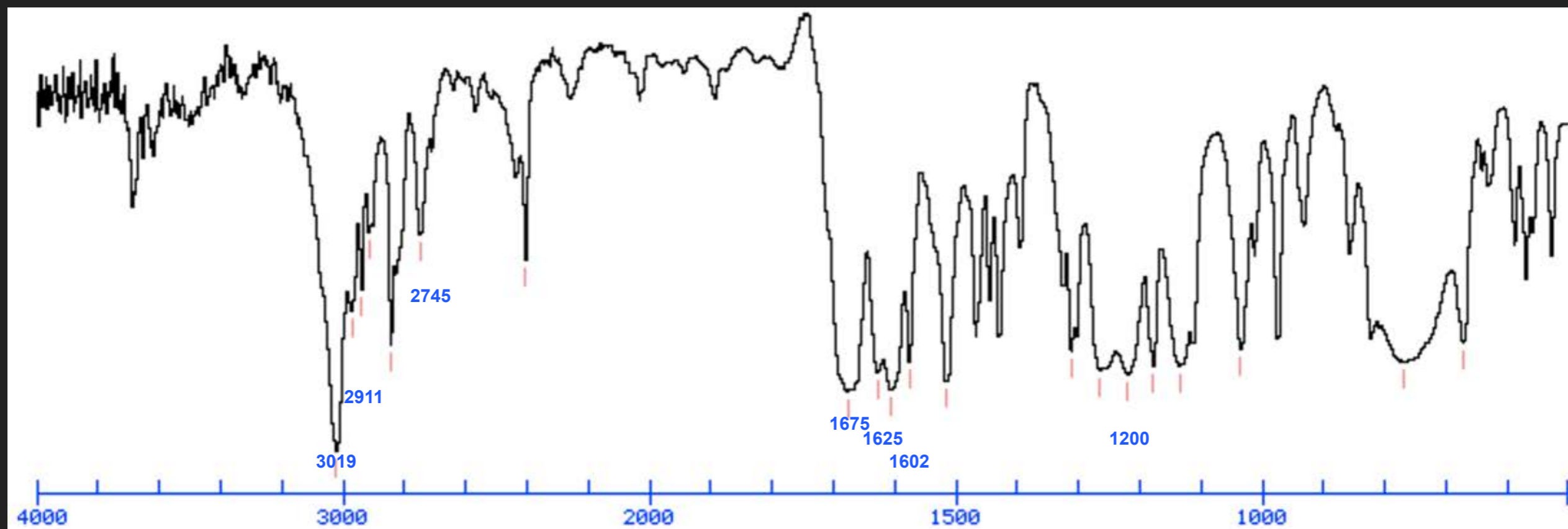
1745,2: stretching C=O

1245,8: stretching C-O

**butyl acetate**  
**butyl ethanoate**



# SPETTRO 14



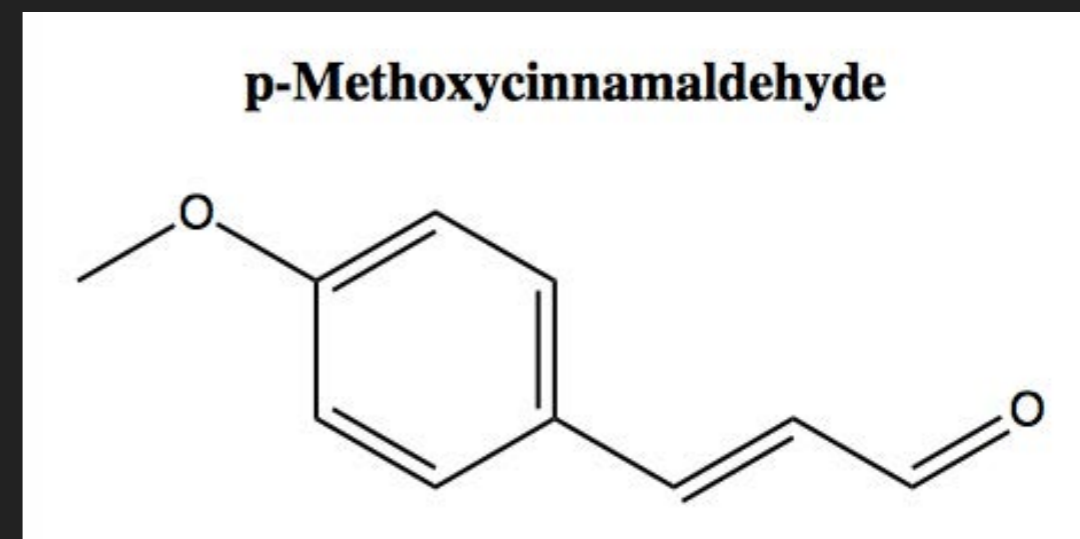
# SOLUZIONE

3019: stretching C-H alcano

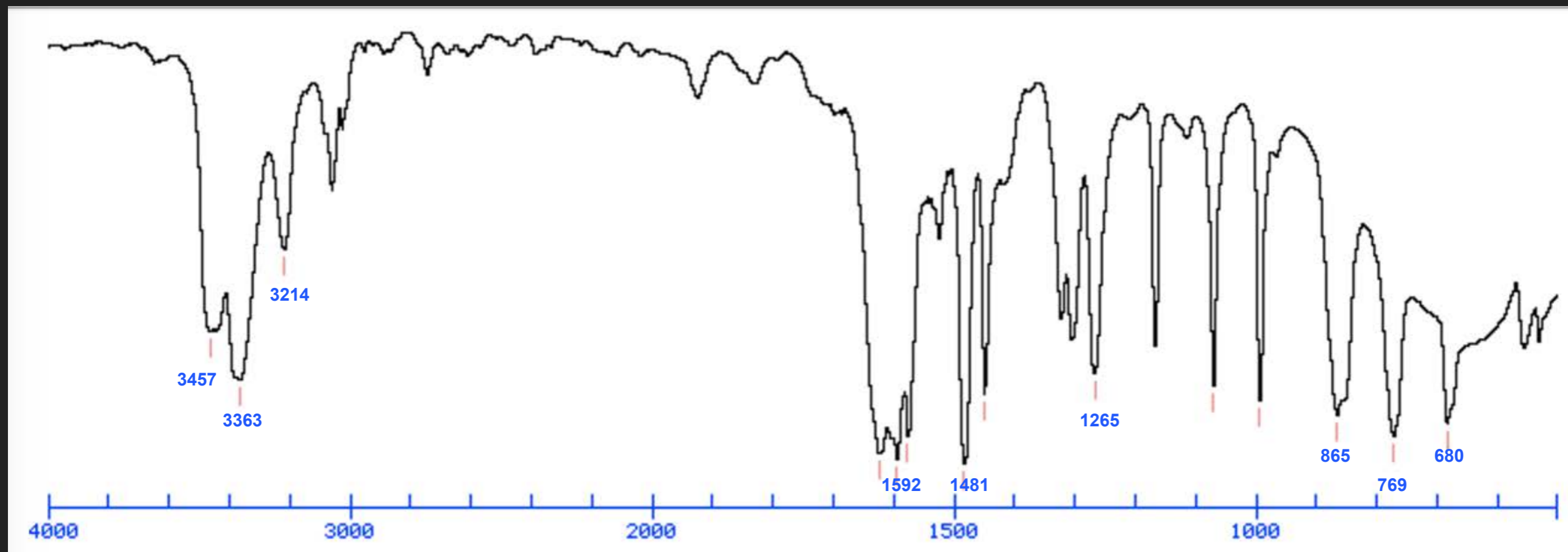
2963,8/2745: stretching C-H aldeide

1745,2: stretching C=O

1245,8: stretching C-O



# SPETTRO 15



# SOLUZIONE

3457: stretching asimmetrico  $\text{NH}_2$

3363: stretching simmetrico  $\text{NH}_2$

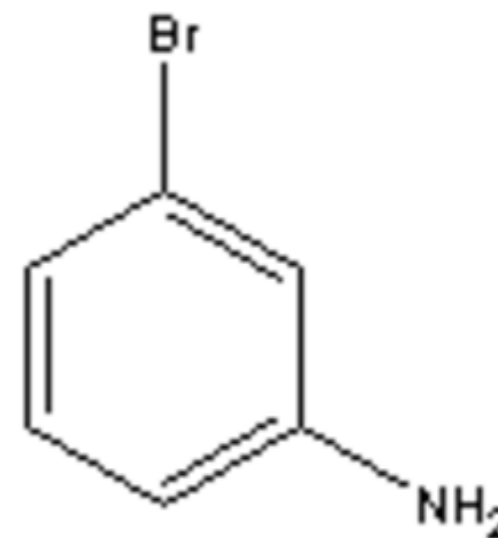
3214: stretching C-H aromatico

1592 e 1481: stretching C-C aromatico

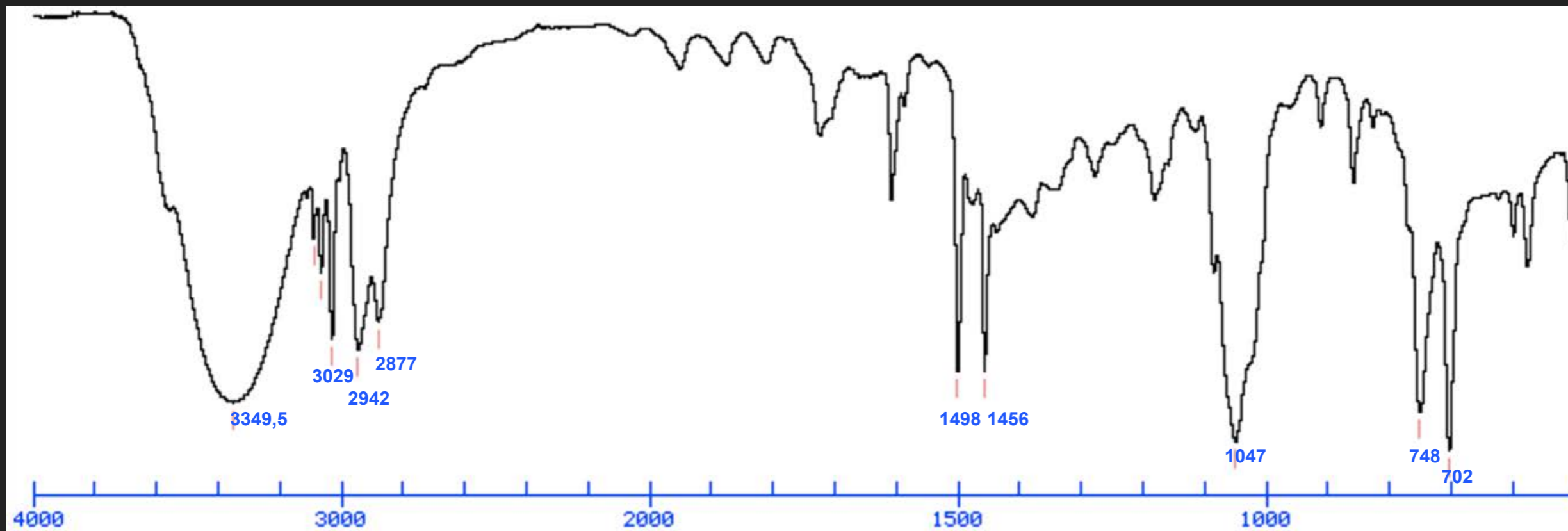
769 e 865: bending C-H aromatico (meta)

680: bending Br

**3-bromoaniline**



# SPETTRO 16





# SOLUZIONE

3349: stretching O-H

3085/2877: stretching C-H

1498, 1456: stretching C-C

1047: stretching C-O

748 e 702: bending C-H monosostituito

**2-phenylethanol**

