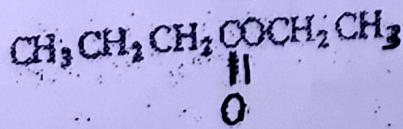
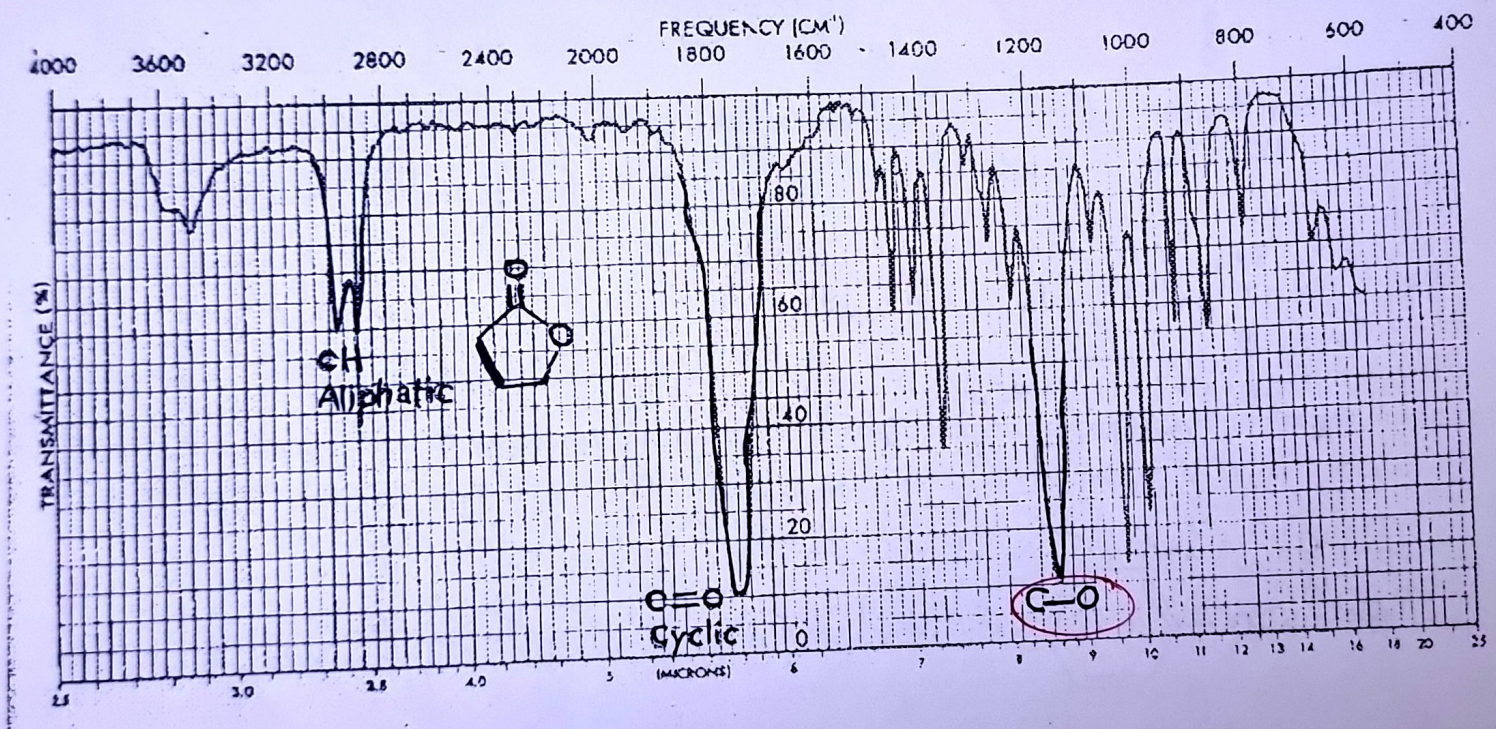


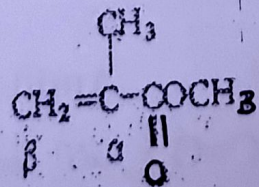
مط الاصرة C-O يكون حزميتين او اكثر واحدة قوية وعريضة اعرض من الاخرى وفي موقع (1300 cm^{-1} - 1000 cm^{-1}) كما في الاشكال

, Ethylbutyrate (2-45) , Vinyl acetate (2-10)
 , Methylbenzoate (2-45), Methylmethacrylate (2-44)
 γ - Butyrolactone (2-47) , Methylsalicylate (2-46)

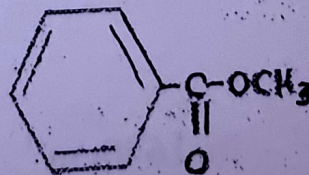
من اهم الاشياء في طيف الاستر هو قمتا امتصاص المط القويتان لكل من C=O و C-O ومن شكل القمة لـ C-O العريضة والقوية في ($1300\text{ To }1000\text{ cm}^{-1}$) نستطيع الجزم بوجود الاستر لا الكيتون .



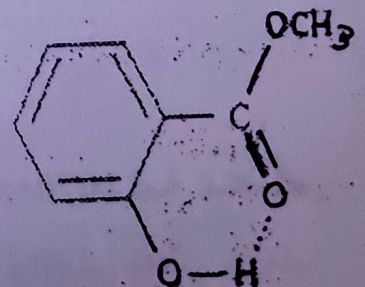
Ethyl Butyrate
 1735 cm^{-1}



Methyl Methacrylate
 1720 cm^{-1}

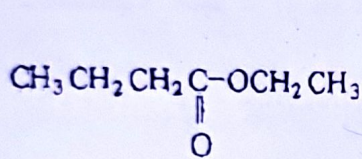
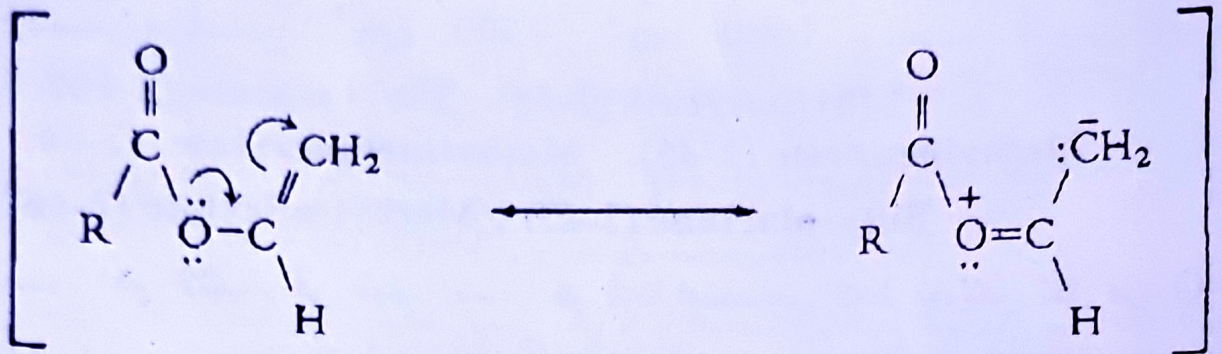


Methyl Benzoate
 1720 cm^{-1}

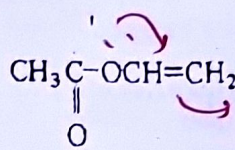


Methyl Salicylate
 1680 cm^{-1}

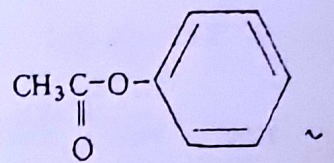
في طيف Vinylacetate يكون امتصاص المط للأصرة $C=O$ 1770 cm^{-1} أعلى من الاعتيادي بـ 35 cm^{-1} والسبب هو عملية التعاقب الذي يزيد من ν .



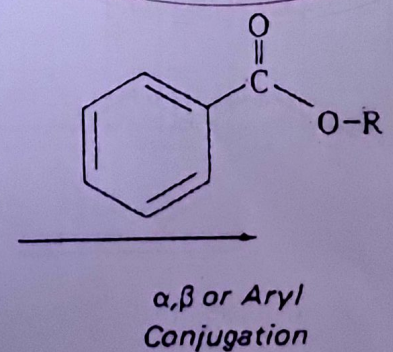
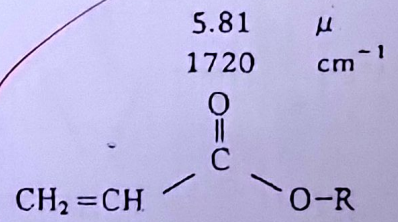
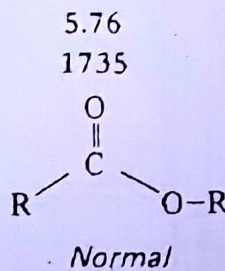
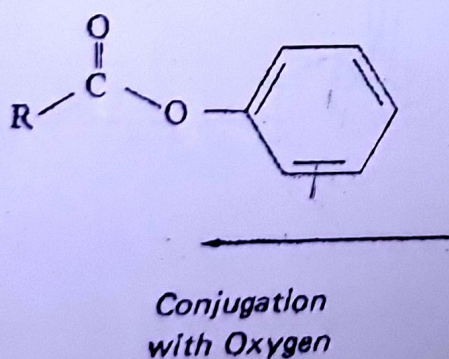
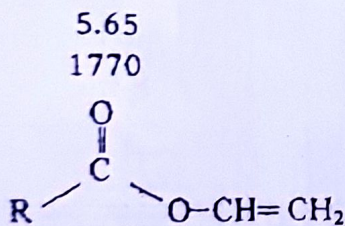
Ethyl Butyrate
 1735 cm^{-1}



Vinyl Acetate
 1770 cm^{-1}



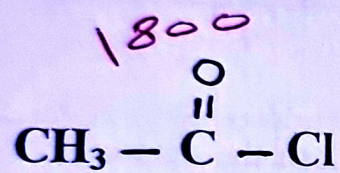
Phenyl Acetate
 1770 cm^{-1}



Amides الاماييد

قمة امتصاص مط للأصرة $C=O$ في 1640 cm^{-1} - 1670 cm^{-1} قمة امتصاص مط للأصرة $N-H$ للاولي والثانوي في 3500 to 3100 cm^{-1} والاولي يعطي حزميتين لـ $(-NH_2)$ في نفس المنطقة . اما اهتزاز الانحناء لـ $N-H$ يكون في 1640 cm^{-1} to 1550 cm^{-1}

مثال: البنزاميد Benzamide شكل (2-49) ومط الاصرة C-N في 1400cm^{-1} للاميد الاول

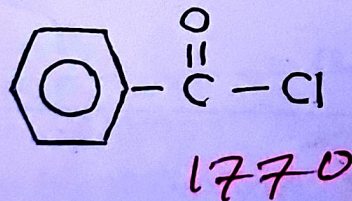


Acid chlorides

كلوريد الحامض

مثال: Acetylchloride

مط الاصرة C=O في حدود 1800cm^{-1} ولكن التعاقب يزيح الى اليمين. كما في Benzoil chloride حيث C=O تكون في 1770cm^{-1}



ALCOHOLS AND PHENOLS

O-H The “free” O-H stretch is a *sharp* peak appearing at $3650\text{--}3600\text{ cm}^{-1}$ ($2.74\text{--}2.78\text{ }\mu$) if no hydrogen bonding takes place. This band is observed only in dilute solutions.

The hydrogen bonded O-H stretch is a *broad* peak which occurs more to the right at $3500\text{--}3200\text{ cm}^{-1}$ ($2.86\text{--}3.13\text{ }\mu$), sometimes overlapping with C-H stretch absorptions. This band is usually the only one present in neat (pure) liquids. In concentrated solutions, both the “free” and hydrogen bonded bands are usually present.

C-O This stretching vibration usually occurs in the range $1250\text{--}1000\text{ cm}^{-1}$ ($8\text{--}10\text{ }\mu$). This band can be used to assign a primary, secondary, or tertiary structure to an alcohol (see discussion).

Examples: The hydrogen bonded O-H stretch is present in the pure liquid samples of 1-hexanol (Fig. 2-26) and 2-butanol (Fig. 2-27). A solution of the phenol, 2-naphthol (Fig. 2-28), shows both the “free” and hydrogen bonded O-H stretch.

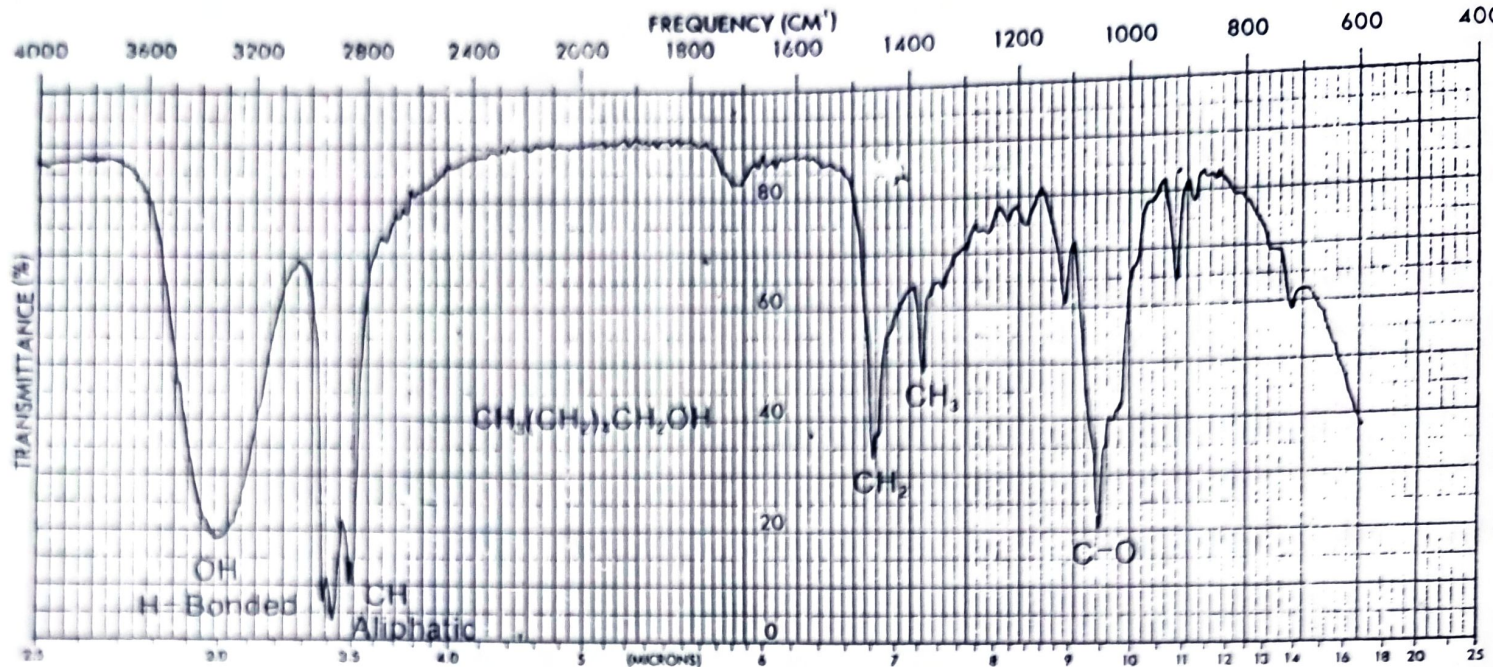


FIGURE 2-26 The Infrared Spectrum of 1-Hexanol (Neat Liquid, Salt Plates)

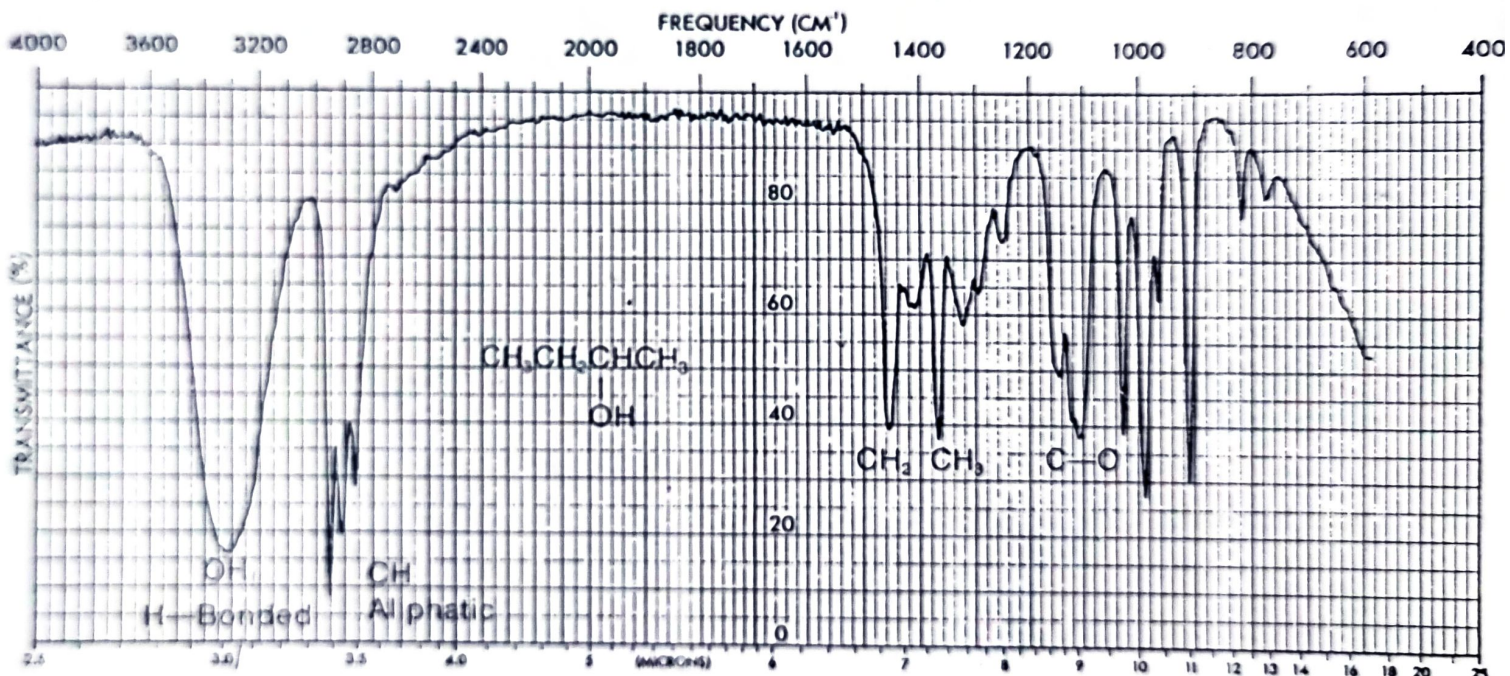


FIGURE 2-27 The Infrared Spectrum of 2-Butanol (Neat Liquid, Salt Plates)

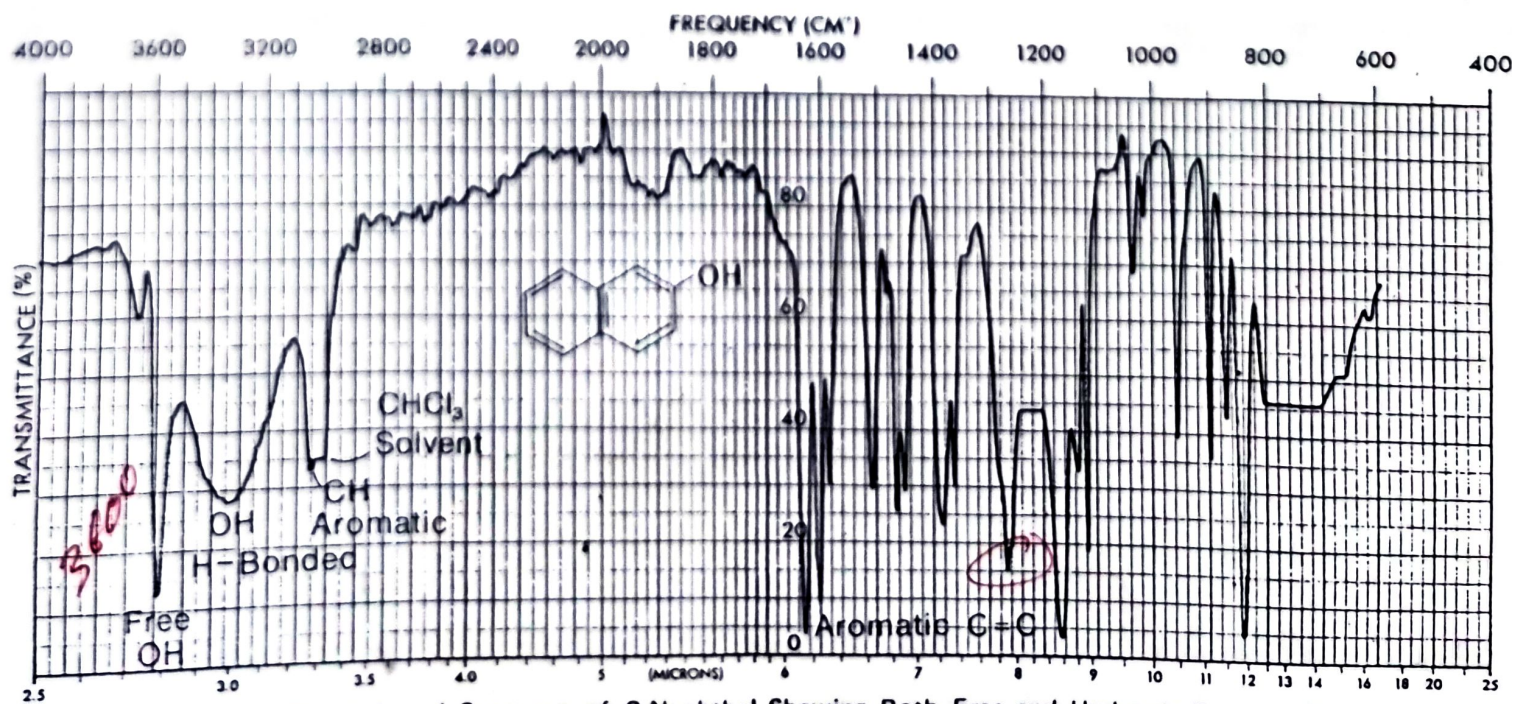


FIGURE 2-28 The Infrared Spectrum of 2-Naphthol Showing Both Free and Hydrogen-Bonded OH (CHCl_3 solution)