

4.8 Infrared Spectroscopy Problems

Learning Objectives

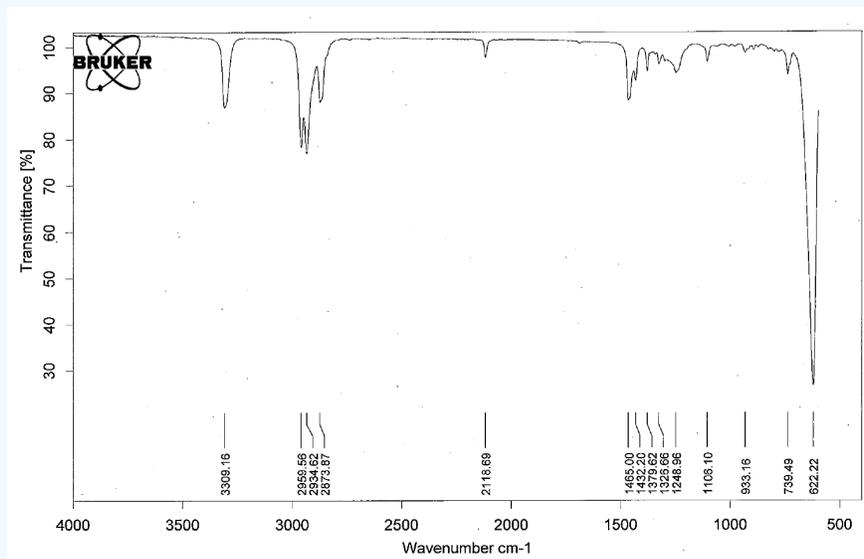
After completing this section, you should be able to

- determine functional groups in an IR spectrum

Here are some problems for IR analysis.

Exercise 1

What functional group is present in the spectrum below?

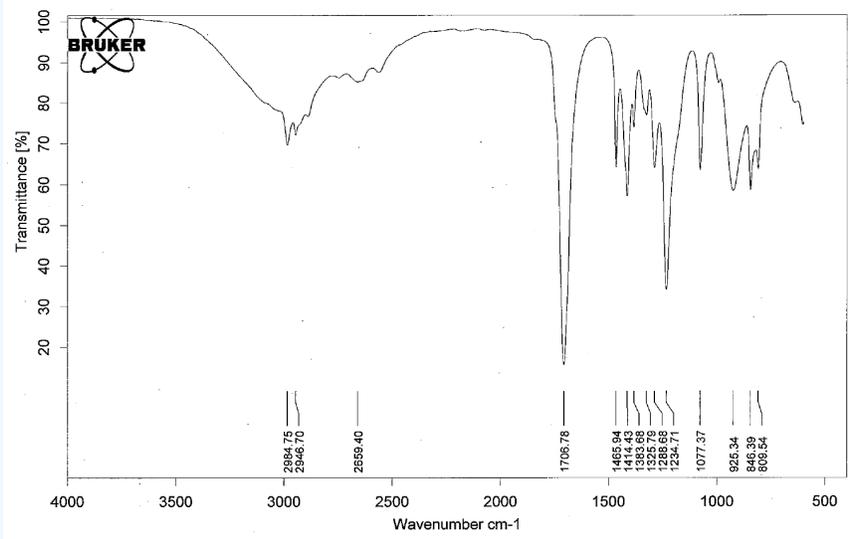


Answer

Alkyne

Exercise 2

What functional group is present in the spectrum below?

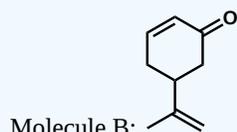
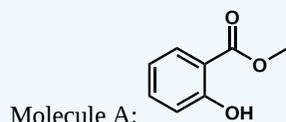


Answer

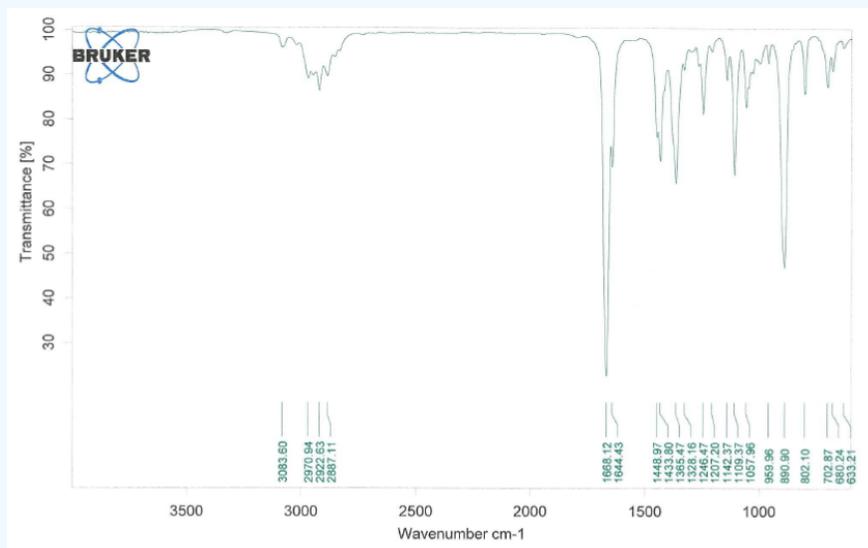
Carboxylic Acid

? Exercise 3

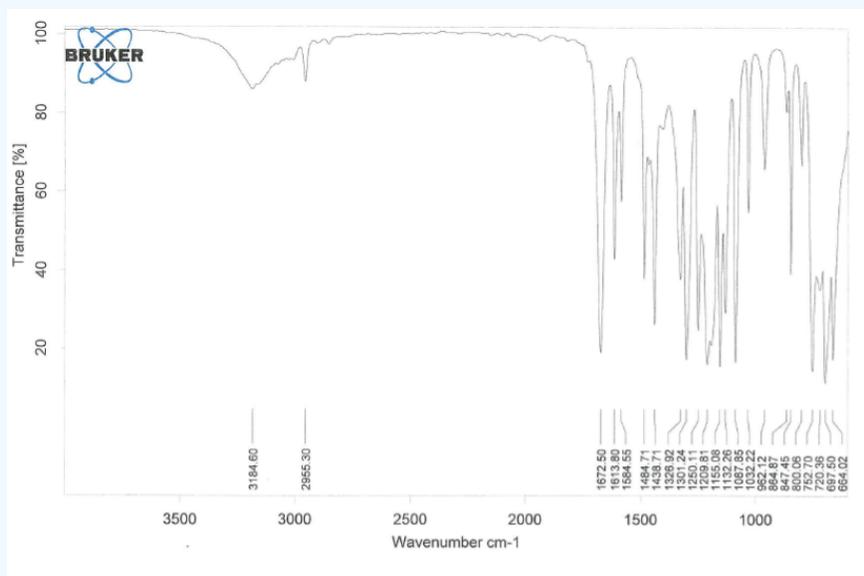
Which IR spectrum goes with which molecule below?



IR spectrum 1:



IR spectrum 2:



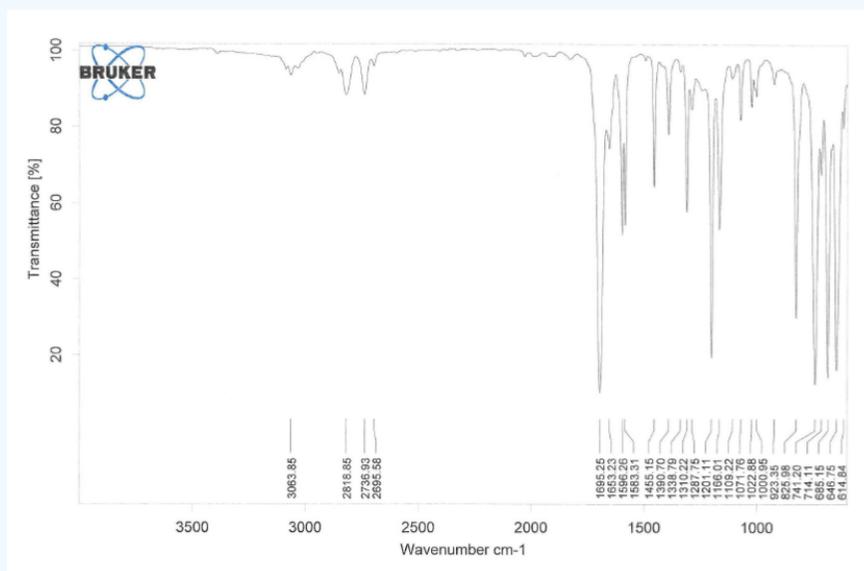
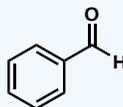
Answer

Molecule A is Spectrum 2.

Molecule B is Spectrum 1.

? Exercise 4

What notable peaks in the IR spectrum verify that benzaldehyde is present?



Answer

Frequency (cm ⁻¹)	Functional Group

3063	Csp ² -H
2818 and 2736	aldehydic proton
1695	C=O
1653-1455	aromatic ring

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