

Infrared spectroscopy structural determination - lab report example

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Infrared spectroscopy structural determination Infrared spectroscopy is the spectroscopy that ideally, handles the infrared zone of the electromagnetic spectrum, which usually comprises of light that has lengthy wavelengths and generally has very short frequencies. This technique looks into numerous techniques that are in line with absorption spectroscopy. It seeks to classify and research on chemicals. A lab instrument that is used to carry out this research is the Fourier transform infrared spectrometer. The Fourier transform Infrared spectrometer gives an electromagnetic spectrum that is separated into three regions, namely, the near, the far-infrared and the mid-infrared. These regions are named relative to their position on the spectrometer.

From the graph, the boiling point is 151°C which makes the unknown organic compound to be isopropyl benzene. This works on the basis that molecules tend to take in specific frequencies that can be related to their structure. The type of bond vibrating is directly proportional to the absorption rate. The amount of energy can also be determined by the shape of the molecular potential energy surfaces, the atomic masses and the vibrancy coupling.

When laboratory findings are being investigated, gaseous sample are usually taken through various processes in order to be ready for tests. Gaseous materials need samples with a long path length. The long path length is necessary for the diluteness. The path length is then reflected on the graph creating the motions (Soderberg 86). The path length determines the can be used to determine the concentration of the compound under investigation.

This technique is widely used both in organic and inorganic chemistry and

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has proven lots of help to scientists. The technique has been applied also while checking the level or concentration of gases in green houses.

Work Cited

Soderberg, Tim. Chapter 4: Structure Determination I: UV- and Infrared Spectroscopy, Mass Spectrometry . Minnesota: Morris publishers Ltd, 2011.