

2020DeatsSpencer-abstract

## Abstract

Halogen bonding represents an interesting form of intermolecular attraction that has recently been recognized as a useful tool in preparation of certain materials and molecular recognition in some chemical and biochemical systems. Halogen bonding is formed between a halogen and an electron rich species on another molecule. Strong halogen bonding specifically was studied in this experiment. The strong halogen bonding's thermodynamic properties, such as equilibrium constants and extinction coefficients, are currently understudied and not well known. Knowledge of these numbers will improve their ability to be used for preparation of materials and their use in molecular recognition in other fields of study. Using Uv-Vis spectroscopy, a wide variety of halogen bond donors and halogen bond acceptors were studied. The acceptors studied were Bromide, Chloride and Iodide anions. And the halogen bond donors studied were halogen containing imides and saccharines. This study found that strong halogen bonding is between 3-1000 times stronger than typical halogen bonding from determining the equilibrium constants and extinction coefficients of various saccharines and imide systems.

Honors College  
Ball State University  
Muncie, IN 47306