



Controversial Nature of Halogen Formation in Charge-Transfer Interactions

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DESCRIPTION

The controversial nature of halogen bonding has non-covalent interactions which lead to direct formation of supramolecular. Halogens bonding between ions of like charges are investigated *in silico* by various groups. It occurs in inorganic, organic, and biological systems. The formation of halogen-bonded complexes involving in the formation of bromine and chlorine as electron acceptor.

The polarization of halogen reaches the limit where the electron is completely removed from halogen atom. The two electron-rich regions interact for the formation of halogen bonded complexes [1]. The nature of halogen bonding has theoretical and experimental studies. The halogen elements are in the form of compounds with hydrogen and hydrogen halides.

The weak interactions are present between closed-shell or pseudo-closed-shell metal cations. Polyhalides represent the other class of inorganic compounds which shows halogen bonding that involves in anionic counterparts [2]. The halogen-bonded complexes of I_2 and Br_2 were Mulliken's theory for charge-transfer interactions.

The electron density in halogen atoms are anisotropically distributed whenever the atom is covalently bound to one or more atoms. The polarized halogen atoms and neutral or charged Lewis bases can be termed as "Halogen bonding", which is a primary interaction. Chlorine is the best known for its halogen elements.

The region from attractive interactions with electron-rich sites, and the general ability of halogen atoms attractively interact with electron donor sites. The halogenated flame retardants claimed to be a source of toxic halogenated dibenzodioxins and dibenzofurans, which are limited at their wide usage. In compounds whereas the halogen atom is involved in the formation of one covalent bond, by far the most common case, there is a region of higher electron density, where the electrostatic potential is negative.

The electronegativity of fluorine has no positively charged area and therefore no interaction potential with nucleophiles. Probably the most important about the halogen elements is they oxidizing agents which are interpreted in terms of transfer of electrons from one atom to another. As covalent bond and region for lower electron density (σ -hole) are frequently positive, and mainly in heavier halogens, which generates depleted electron density on elongation of covalent bond.

The gas phase of hydrogen halides inhibits radical-chain oxidation reactions in flame [3]. The introduction of halogen is a traditional tool in drug optimization which increases the membrane permeability of halogenated drug. The disproportionation reaction in which one-half of chlorine atoms are oxidized to hypochlorite ions and other half are reduced to chloride ions [4].

The energy of the hydrogen-halogen bond increases strongly from iodide to fluoride. In halo benzenes, the size of σ -hole increases with halogen size from chlorine to iodine, an observation that was made in several studies. Halogen-halogen intermolecular interactions are different.

The interaction of attractive between a Lewis basic site and electron-deficient is covalently bonded halogen atom [5]. Polyvinyl chloride is not a halogen-free material because it contains chlorine. The chemical characteristics are primary members of halogen group.

CONCLUSION

The syntheses of halogen-bonded adducts undergo heterogeneous processes and the solid reagent interacts with gas. The interhalogen compounds are formed by the reactions between different halogens. The complexes of molecular halogens yield important as they undergo bonding interactions and involved in catenane synthesis.

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