

Dipole-dipole forces; these are attractive forces of the positive charged end of a polar molecule and the negative end of an additional polar molecule. They lack in strength compared to ionic and covalent bonds and the bonding will be effective when two molecules are closely interactive. All polar molecules have a semi positively charged end a semi negatively charged end. The positive end is attractive to a negative end and the negative end is attracted to the positive end.

If we look at Iodine monochloride (ICl) for example;

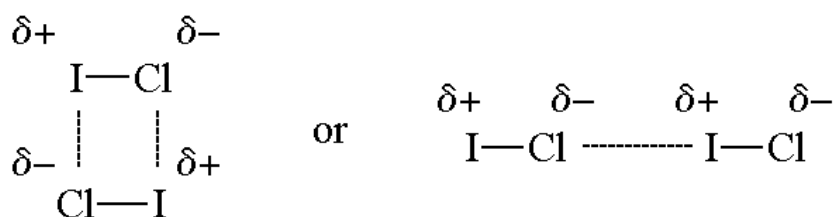


Fig. 78 The figures show two arrangements of polar iodine monochloride (ICl) molecules that give rise to dipole-dipole attractions

In this case chlorine will be the electronegative atom and has the negative charge. Iodine will be slightly less electronegative atom making it the positively charged end. And will be attracted to the negatively charged chlorine. (Chempurdue Education, 2015).

Van der Waals forces;

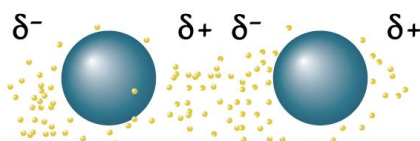
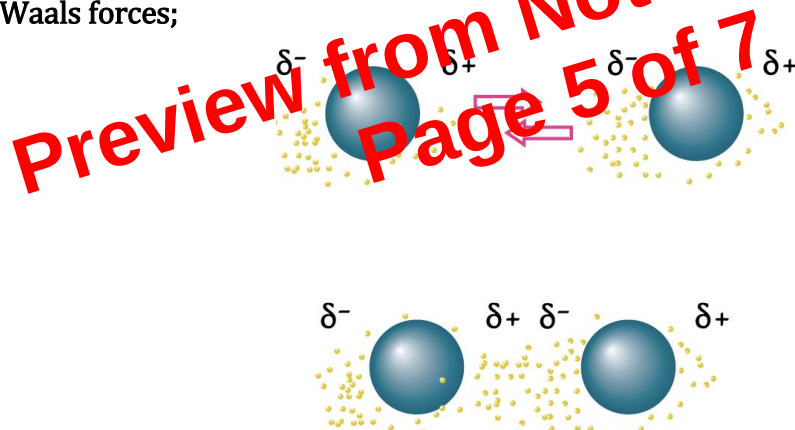


Fig. 9 Van der Waals Forces (2015)

Amongst the types of bonding, van der Waals forces are the weakest and its forces of attraction exist between all atoms and molecules. This type of bonding is however limited to molecules that has no other intermolecular forces such as noble gases (Ar, He, Rn etc.). In atoms and molecules, the movement of the electrons causes an electrostatic attraction between temporary and induced diploids. The force's strength in Van der Waals forces depends on the size of the atoms and molecules, the bigger size the bigger force. (BBC Bitsize, 2014).