
- Define polarizability. How does this property affect the strength of London forces or induced dipole-induced dipole interactions.

Polarizability is the ease with which an atom or molecules electron distribution can be distorted to produce partial positive and negative charges on the atom or molecule.

Polarizability is a periodic trend that increases down a column as atoms get bigger and the outer electrons are further from the nucleus and held less tightly requiring less work or energy to distort the distribution of the outer electrons. Polarizability decreases across a row as the nuclear charge increases without an increase in shielding resulting in smaller atoms with more tightly held outer electrons that are hard to move. Fluorine, the most electronegative element is also the least polarizable.

London forces, another name for induced dipole – induced dipole forces, will increase with increasing polarizability. A greater polarizability will result in larger, temporary partial charges being induced in the atom or molecule which will cause larger electro-magnetic forces. London forces are responsible for the boiling and melting points in non-polar materials.