

Task:

arrange F,Cl,Br and I in the order of increasing electronic gain enthalpy

Answer:

In a group from top to bottom, the electron gain enthalpy become less negative due to increasing size from F to I.

But Fluorine shows less negative electron gain enthalpy than chlorine. This is due to small size and $2s^2, 2p^5$ configuration of fluorine. There is strong electron-electron repulsion in compact 2p-orbital.

Electron Gain Enthalpy	kJ mol^{-1}
F	-333
Cl	-348
Br	-324
I	-295