1. Lattice energy is the result of electrostatic interactions among ions. So it is depend on ionic size, ionic charge and ionic arrangement in the solid.

2. Energy of attraction is proportional to the product of the charges and inversely proportional to the distance between them.

$$\underset{\text{(electrostatic)}}{\text{Energy}} \propto \frac{\text{charge 1} \times \text{charge 2}}{\text{distance}} \quad @ \quad \frac{q_1 q_2}{r}$$

ie. higher charges attract each other more strongly than ions with lower charges.

3. Effect of ionic size.

As we move down a group in the periodic table, the ionic radius increases (r increases). Therefore, the attration between cations and anions decreases because the interionic distance, r is greater. Thus the lattice energies of the compound also decreases. So LiF (smallest ions) has the highest lattice energy and RbI (largest ions) has the lowest.

4. Effect of Ionic Charge

- Compare LiF (Li^+. F^-) and MgO (Mg^{2+}. O^{2-})
- r_{Li^+} (76pm) $\approx$ $r_{Mg^{2+}}$ (72pm)
- r_{F^-} (133pm) $\approx$ $r_{O^{2-}}$ (140pm)
- $\Delta H^{\circ}_{lattice}$ of LiF = 1050 kJmol^{-1}

  $\Delta H^{\circ}_{lattice}$ of MgO = 3923 kJmol^{-1} ($= 4 \times \Delta H^{\circ}_{lattice}$ of LiF)

  ie: $q_1 . q_2$: (1x1) Vs (2x2)

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