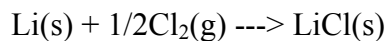


CHEM 1100 Born-Habor Cycle Practice

1. (5 points) Calculate the net energy change, ΔE , (in kJ per mole) that occurs when lithium chloride forms from the elements



Enthalpy of sublimation for Li	159 kJ/mole
Bond dissociation energy for Cl_2	243 kJ/mole
Lattice energy for LiCl	853 kJ/mole
Electron affinity for Cl	-349 kJ/mole
First ionization energy for Li	520 kJ/mole

Show your work!

2. (5 points) Calculate the lattice energy for MgO:

Mg (s), energy for sublimation = +148 kJ/mol

1st ionization energy for Mg = +738 kJ/mol

2nd ionization energy for Mg = +1450 kJ/mol

Bond dissociation energy for O_2 = +499 kJ/mol

1st electron gain electron affinity for O = -141 kJ/mol

2nd electron gain electron affinity for O^- = +844 (it requires energy to stuff an electron into a negative environment of O^-)

for MgO (s), energy of the reaction (ΔE) = -602 kJ/mol

for MgO (s), lattice energy = ?

Show your work!

4.