## Question #47902, Chemistry, Physical Chemistry

Why electronegetivity generally increases with an element's oxidation state ?

## Answer:

With increasing oxidation state, the ionization energy increases.

For example:

$$Na(g) \rightarrow Na^{+}(g) + e^{-} \qquad \Delta H^{\circ}_{1,m} = +495 \text{ kJ/mol}$$
  
 $Na^{+}(g) \rightarrow Na^{2+}(g) + e^{-} \qquad \Delta H^{\circ}_{2,m} = +4563 \text{ kJ/mol}$ 

$$\chi = \frac{1}{2} \left( J_1^A + \epsilon_A \right)$$

X-electronegativity , J-ionization energy,  $\varepsilon\text{-}$  electron affinity