

## Answer on Question #63653 - Chemistry – General Chemistry

Which set below has the species listed in order of increasing standard entropy,  $S^\circ$ ?

Select one:

- a.  $\text{NaHCO}_3(\text{aq}) < \text{C}_2\text{H}_5\text{OH}(\text{l}) < \text{Cr}(\text{s}) < \text{N}_2(\text{g})$
- b.  $\text{Cr}(\text{s}) < \text{C}_2\text{H}_5\text{OH}(\text{l}) < \text{NaHCO}_3(\text{aq}) < \text{N}_2(\text{g})$
- c.  $\text{N}_2(\text{g}) < \text{NaHCO}_3(\text{aq}) < \text{Cr}(\text{s}) < \text{C}_2\text{H}_5\text{OH}(\text{l})$
- d.  $\text{Cr}(\text{s}) < \text{N}_2(\text{g}) < \text{NaHCO}_3(\text{aq}) < \text{C}_2\text{H}_5\text{OH}(\text{l})$
- e.  $\text{Cr}(\text{s}) < \text{NaHCO}_3(\text{aq}) < \text{C}_2\text{H}_5\text{OH}(\text{l}) < \text{N}_2(\text{g})$

### **Solution.**

Entropy is a measure of the "disorder" of a system

Increasing standard entropy,  $S^\circ$ :

- e.  $\text{Cr}(\text{s}) < \text{NaHCO}_3(\text{aq}) < \text{C}_2\text{H}_5\text{OH}(\text{l}) < \text{N}_2(\text{g})$

**Answer:** e.  $\text{Cr}(\text{s}) < \text{NaHCO}_3(\text{aq}) < \text{C}_2\text{H}_5\text{OH}(\text{l}) < \text{N}_2(\text{g})$