

Question #77044, Chemistry / Physical Chemistry

Which of the following has the lowest value of absolute entropy per mole? Conditions are as defined in each case.

- A) solid sodium at 30 °C
- B) gaseous sodium at 900 °C and 0.5 atm
- C) gaseous sodium at 900 °C and 1 atm
- D) liquid sodium at 100 °C
- E) a solid solution of sodium in potassium at 30°C

Answer:

Absolute entropy per mole for same compound in different states: the highest for gaseous state, the lowest for solid state. The entropy also increases as the pressure or concentration becomes smaller. So,

B) gaseous sodium at 900 °C and 0.5 atm
the lowest value of absolute entropy per mole

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