Answer on Question #72222 – Chemistry – General chemistry

Question:

Why does Silicon have a higher melting point than Aluminium but a lower boiling point?

Answer:

Silicon and Aluminium belong to the same period but to different groups in Periodic table. There is some trend for the properties of elements in this table. For example, metallic properties of elements decrease in period because of different amount of vacant electrons. One can note, that Silicon is less metallic element than Aluminium. Aluminium has 3 valence electrons and it is much easier to give electrons for the bond formation. For this element shouldn't be complicated to break bond in crystal lattice than for Silicon. But let's look at electronic structure of Silicon. There are 4 valence electrons and to form and break chemical bond for this element is much complicated than for element with 3 electrons. Bonds between the element of this sort form by the adding or electron yield.

Element	Melting point, K	Boiling point, K
Aluminium	933	2743
Silicon	1687	3538

That is why melting and boiling points for Silicon are higher than for Aluminium.

Answer: b) decreases as the reaction proceeds.