

Question 1

Consider two elements, Cl₂ and Br₂. Why do both turn solid when cooled? When the temperature reaches 25⁰C, why does Br₂ turn into liquid, while Cl₂ becomes a gas?

Answer:

Molecules are turned into solids because of the dispersion forces acting on them. The kinetic energy of the molecules decreases when the elements are cooled, and at the same time, the dispersion forces are more than the kinetic energy. These forces are responsible for turning these elements into a solid-state.

The reason why this phenomenon occurs is that, at 25⁰C, the forces between the Br₂ molecules are enough to change their state and make them into a liquid state. But when it comes to the Cl₂ molecules, the London dispersion forces are weak.