# Specific Latent Heat Questions for GCSE Physics

**1.** A 1 kg block of ice melts at 0°C. If the specific latent heat of fusion of ice is 334,000 J/kg, how much energy is required to melt the block?

**2.** How much energy is required to boil 2 kg of water at 100°C, given that the specific latent heat of vaporization of water is 2,260,000 J/kg?

**3.** What is the specific latent heat of fusion if 50,000 J of energy is required to melt 0.2 kg of a substance at its melting point?

**4.** If 670,000 J of energy is used to evaporate 0.25 kg of water at 100°C, what is the specific latent heat of vaporization of water?

**5.** A 3 kg block of a material requires 6,690,000 J to completely vaporize. What is the specific latent heat of vaporization of the material?

**6.** Calculate the energy needed to melt 0.75 kg of lead at its melting point, if the specific latent heat of fusion of lead is 24,500 J/kg.

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**7.** A 0.6 kg block of ice is melted, and the temperature remains constant at 0°C. How much energy is required, given the specific latent heat of fusion of ice is 334,000 J/kg?

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**8.** A 2.5 kg sample of steam condenses into water at 100°C. How much energy is released during this process, given that the specific latent heat of vaporization of water is 2,260,000 J/kg?

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**9.** A 0.3 kg block of an unknown substance requires 27,000 J to melt at its melting point. Calculate the specific latent heat of fusion of the substance.

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**10.** If 4 kg of water at 100°C absorbs 9,040,000 J of energy, how much of the water will evaporate? The specific latent heat of vaporization of water is 2,260,000 J/kg..

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**11.** How much energy is needed to vaporize 0.85 kg of ethanol, if the specific latent heat of vaporization of ethanol is 850,000 J/kg?

**12.** A 5 kg block of water is cooled and freezes completely at 0°C. How much energy is released during this phase change, given the specific latent heat of fusion of water is 334,000 J/kg?

**13.** A 250 g sample of a substance with a specific latent heat of fusion of 210,000 J/kg is completely melted. How much energy is absorbed in this process?

**14.** A 5.0 kg block of ice at 0°C absorbs 1,169,000 J of energy to partially melt. How much of the ice melts, given that the specific latent heat of fusion of ice is 334,000 J/kg?

**15.** A 4 kg sample of a substance is heated, and its temperature rises to its boiling point. It then requires 4,800,000 J of energy to completely vaporize. If the specific latent heat of vaporization is 1,600,000 J/kg, how much of the substance has vaporized?