

Physics 10154 - Quiz 12B

120 grams of steam at a temperature of 145 °C is inside a 3.5 kg Aluminum container that is also holding 342 grams of water. The Aluminum container and 342 grams of water are initially at a temperature of 18°C.

The specific heat of aluminum is 900 J/kg-C.

The specific heat of steam is 2010 J/kg-C.

The specific heat of water is 4186 J/kg-C.

The latent heat of vaporization for water is 2.26×10^6 J/kg.

Does all of the steam condense?

If yes, what is the final temperature of the system?

If no, how much steam condenses?