PHYS 212L Spring 2014 Lab 1 Hwk due on WP: 1/24/14

 Heat Transfer Q is given by: Q = mcΔT Q = mL

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| ••40    | Calculate the specific heat of a metal from the following data. A container made of the metal has a mass of 3.6 kg and contains 14 kg of water. A 1.8 kg piece of the metal initially at a temperature of 180°C is dropped into the water. The container and water initially have a temperature of 16.0°C, and the final temperature of the entire (insulated) system is 18.0°C. |

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Ethyl alcohol has a boiling point of 78.0°C, a freezing point of -114°C, a heat of vaporization of 879 kJ/kg, a heat of fusion of 109 kJ/kg, and a specific heat of 2.43 kJ/kg·K. How much energy must be removed from 0.510 kg of ethyl alcohol that is initially a gas at 78.0°C so that it becomes a solid at -114°C? |