Phase transitions: Latent Heat

Amount of heat needed to melt ice or vaporize water of mass **m**, is

$$\Delta Q = Lm$$

Here **L** is called *specific latent heat* of melting or vaporization, respectively. For melting at **0°C, L= 334kJ/kg**, for vaporization at **100°C, L= 2265 kJ/kg**.

• Amount of heat needed to increase temperature of a substance by amount **ΔT** , is

$$\Delta Q = Cm\ \Delta T$$

Here **m** is mass and **C** is called *specific heat capacity*.

Homework

m=100g of ice is mixed with 1 liter of hot water in a thermally isolated cup. What will be the final temperature of the content of the cup, if the initial temperature of water is **100°C** and initial temperature of ice is **-10°C** ?