Answer on Question 40296, Physics, Acoustics Question: An electric kettle contains 1.5 kg of water at 100o C and powered by a 2.0 kW electric element. If the thermostat of the kettle fails to operate, approximately how long will it take for the kettle boil dry? (Take the specific latent heat of vaporization of water as 2000kJkg-1).
Solution. Let us find needed amount of heat

$$Q = m \cdot \lambda$$

where m is mass of water and C is specific heat of vaporization. Then the time will be heat devided by power.

$$t = \frac{Q}{P} = \frac{m\lambda}{P} = \frac{1.5 \cdot 2000 \cdot 10^3}{2 \cdot 10^3} = 1500\, s = 25\, min$$