

 T_{wall} - T_{sat} [K]

Figure 1: The boiling curve.



Figure 1: Temperature as a function of time for a bare copper ball.



Figure 2: Temperature difference between the center thermocouple and the wall thermocouple as a function of time for a bare copper ball.



Figure 4: Images of the boiling sphere. High heat flux film boiling (top left), MHF (top center), transition boiling (top right), CHF (bottom left), high heat flux nucleate boiling (bottom center) and low heat flux nucleate boiling (bottom right).



Figure 5: Biot number and heat transfer coefficient as a function of temperature.



Figure 6: Heat flux as a function of superheating for a bare copper ball in liquid nitrogen.



Figure 7: Critical heat flux and corresponding temperature for a bare copper sphere.



Figure 8: Minimum heat flux and the corresponding temperature for a bare copper sphere.



Figure 9: Temperature as a result of time for a bare copper sphere (dash line) and with (a) one layer, (b) two layers, (c) three layers, (d) four layers and (e) five layers of tape.



Figure 10: Heat flux versus the temperature difference between the center thermocouple and the liquid nitrogen for the copper sphere insulated with (a) one layer, (b) two layers, (c) three layers, (d) four layers, and (e) five layers of tape.



Figure 11: Wall temperature of the sphere insulated with one layer of tape.



Figure 12: Boiling heat transfer coefficient and the effective thermal conductivity of the insulation for one layer of tape.