

Cavitation and Boiling

The discussions of bubble dynamics in the last few sections lead, naturally, to two technologically important multiphase phenomena, namely cavitation and boiling. As we have delineated, the essential difference between cavitation and boiling is that bubble growth (and collapse) in boiling is inhibited by limitations on the heat transfer at the interface whereas bubble growth (and collapse) in cavitation is not limited by heat transfer but only inertial effects in the surrounding liquid. Cavitation is therefore an explosive (and implosive) process that is far more violent and damaging than the corresponding bubble dynamics of boiling. There are, however, many details that are relevant to these two processes and these will be outlined in sections (Nh) and (Ni) respectively.