

A critical review : Surface and interfacial tension measurement by the drop weight method

Abstract

The drop weight method has been used as a standard method for surface and interfacial tension measurement. However, lack of appropriate guidelines in using this method has resulted in errors. The specific objective of this critical review is to present the experimental setup, the limitations on the correction factors, and the principle of the drop weight method. Mathematical models of correction factors were evaluated by using a proposed error analysis. The use of the proposed Lee-Chan-Pogaku model and HG-Equation 2 for correction factor determination is suggested. However, further investigations would be required to justify the validity of the correction factors at low $r/V^{1/3}$ range and their use for viscous fluids. The physics of drop detachment is complicated; more investigations would be required to form a rigid theory of this method.