



UNIT 4



VISCOSITY MEASUREMENTS AND ITS SIGNIFICANCE IN FOOD QUALITY

The texture of food is dramatically impacted by changes in viscosity. The chocolate industry is dependent on viscosity testing as the texture and flow of chocolate can be complex to manufacture and maintain. For example, the thickness of chocolate when it is in a melted state will impact the finished solid state. To achieve the correct density, texture, and taste of chocolate when it becomes solid, careful consideration to the viscosity of the product when it is a liquid is vital.

In the baking industry, viscosity plays a very important role as it will impact the chance of phase separation, affecting the products made from batter and dough. Pinpointing and maintaining an exact viscosity when baking or working with dough ensures phase separation happens at the appropriate time during the baking process, affecting the quality of the baked goods. If a cake batter has an inappropriately low level of viscosity, the phases will easily separate at the wrong time, resulting in a poor-quality cake

MEASUREMENT OF VISCOSITY

The most common way to measure and track viscosity is with a viscometer. Today's viscometers are very user-

friendly and functional thanks to rotational viscometer technology. These viscometers measure a large range of viscosity from 200 to 106 million, with an accuracy range of $\pm 1\%$ to $\pm 0.2\%$. The measurements of a product's viscosity are based upon immersing a specifically selected spindle within a sample of product. As the spindle rotates at a specific speed, a vortex is created by vigorous stirring. The torque required to rotate the spindle at a set speed is measured, based upon the amount of drag created from the spindle moving in the liquid. The instrument senses the rotation and the measured torque value is mathematically converted into a viscosity value in scientific units called centipoise (cP) or milliPascal-seconds (mPa.s).