



## Summary

Unit operations are the processes involved in converting a raw product to the final product that is consumed by the end users. Therefore, the study of process engineering is an attempt to combine all forms of physical processing into a small number of basic operations, which are called unit operations. Food processes may seem bewildering in their diversity, but careful analysis will show that these complicated and differing processes can be broken down into a small number of unit operations. For example, consider heating of which innumerable instances occur in every food industry. There are many reasons for heating and cooling - for example, the baking of bread, the freezing of meat, the tempering of oils. The essential concept of food processing is however to divide physical food processes into basic unit operations, each of which stands alone and depends on coherent physical principles. For example, heat transfer is a unit operation and the fundamental physical principle underlying it is that heat energy will be transferred spontaneously from hotter to colder bodies. Important unit operations in the food industry are heat transfer, drying, evaporation, contact equilibrium processes (which include distillation, extraction, gas absorption, crystallization, and membrane processes), mechanical separations (which include filtration, centrifugation, sedimentation and sieving), size reduction and mixing.