Introduction

Fundamentals of freeze drying

Heat-mass transfer analyses and modeling for drying process

Equipment of freeze drying

Freeze drying of food

Protective agent and additives for freeze-drying of pharmaceutical products
Sugars/polyols-type protective agents. Polymer-type protective agents. Surfactants and amino acid-type protective agents and other additives. Formula issues of the freeze-drying products. Examples of formula.

Freeze drying of pharmaceuticals

Disinfection, sterilization and validation in freeze drying