

Preface

Purpose and Background of the Book

I write this book as a life-long student and practitioner of food engineering who realizes that relatively little of what I have learned to do in process development and food plant design was taught to me, or anyone, in a conventional academic course. Rather, I and others who practice in industry or are consulting have learned by experience and, frankly, by making mistakes. Once I gave a plenary lecture at an International Conference on Engineering and Food (ICEF 7) (Clark 1997b) and a friend commented that all my examples sounded like failures. Well, that was not quite true, but I also feel that we do primarily learn from our mistakes – unfortunately it is rare that great successes are dissected.

This book has several purposes:

1. To serve as a source of information about a representative collection of food processes with which I have had experience;
2. To convey some practical lessons about process development and plant design; and
3. To serve educators as a resource for class problems and discussion.

The book is organized in three broad parts. The first concerns processes that are primarily physical, such as mixing. The second concerns processes that also involve biochemical changes, such as thermal sterilization. The third part addresses some broader issues that I have not seen discussed elsewhere, including how to tour a plant, how to choose among building a new plant, expanding or renovating, and how to develop processes.

Entire volumes have been written by others on many of the processes discussed here, so I am not attempting to supply the definitive description of each. Rather I intend to provide my own understanding in sufficient detail to set the context in which the various lessons can be illustrated.

I should also mention that I have tried very hard to avoid disclosing proprietary information and I have not intentionally revealed the names of specific clients or sources of information. My career spans over 40 years and so some experiences are

relatively well aged while others are much more recent. Some companies consider the fact that they used my services (or those of the firms for whom I worked) as confidential; others do not, but I have written as if all felt that way. Some of my past clients probably consider some of our mutual developments as proprietary, and over the years I was trusted with some very sensitive information, such as product formulas. I believe that the facts I am using are in the public domain.

I have limited illustrations to those I felt are essential. It is a useful exercise for the reader to locate on the Internet and in other sources additional illustrations if interested.

Some of the material in this book previously appeared in a different form in columns on processing since 2002 in *Food Technology* magazine, published by the Institute of Food Technologists. I am grateful to Neil Mermelstein, Bob Swientek, Roy Hlavacek, and Mary Ellen Kuhn, editors and publisher who gave me the opportunity to write those columns and helped to make them better.

I dedicate this book with love and gratitude to my wife since 1968, Nancy, who read each draft, made cogent suggestions, and has supported this effort and my entire career generously and wisely.

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