

Table of Contents

Preface	xiii
Chapter 1 Sanitation and the Food Industry	1
The food industry	1
What is sanitation?.....	3
Why sanitation?.....	3
Sanitation laws and regulations and guidelines	9
Establishment of sanitary practices.....	13
Summary.....	14
Study questions	15
Chapter 2 The Relationship of Biosecurity to Sanitation	16
Potential risks of foodborne bioterrorism	17
Bioterrorism protection measures	17
The role of pest management in biosecurity	22
Additional bioterrorism information.....	22
Summary.....	23
Study questions	24
Chapter 3 The Relationship of Microorganisms to Sanitation.....	25
How microorganisms relate to food sanitation.....	25
What causes microorganisms to grow	30
Effects of microorganisms on spoilage.....	34
Effects of microorganisms on foodborne illness.....	35
Foodborne illnesses	36
Microbial destruction.....	53
Microbial growth control	55
Microbial load determination	55
Diagnostic tests	62
Summary.....	67
Study questions	67

Chapter 4	The Relationship of Allergens to Sanitation	70
	What are allergens?	71
	Allergen control	71
	Summary.....	75
	Study questions	75
Chapter 5	Food Contamination Sources	76
	Transfer of contamination	77
	Contamination of foods.....	77
	Other contamination sources	80
	Protection against contamination	81
	Summary.....	82
	Study questions	82
Chapter 6	Personal Hygiene and Sanitary Food Handling	83
	Personal hygiene.....	83
	Sanitary food handling.....	96
	Summary.....	97
	Study questions	98
Chapter 7	The Role of HACCP in Sanitation.....	99
	What is HACCP?	99
	HACCP development.....	101
	Interface with GMPs and SSOPs	106
	HACCP principles	106
	Organization,implementation,and maintenance	111
	Summary.....	114
	Study questions	114
Chapter 8	Quality Assurance for Sanitation	116
	The role of total quality management.....	117
	Quality assurance for effective sanitation	117
	Organization for quality assurance	119
	Establishment of a quality assurance program.....	125
	Summary.....	139
	Study questions	140
Chapter 9	Cleaning Compounds	141
	Soil characteristics	141
	Effects of surface characteristics on soil deposition	143
	Soil attachment characteristics.....	144
	Cleaning compound characteristics.....	146
	Classification of cleaning compounds.....	148
	Cleaning auxiliaries.....	154
	Scouring compounds.....	156
	Cleaning compound selection	156

	Handling and storage precautions	157
	Summary	163
	Study questions	163
Chapter 10	Sanitizers	165
	Sanitizing methods	165
	Summary	188
	Study questions	188
Chapter 11	Sanitation Equipment.....	190
	Sanitation costs	190
	Equipment selection	191
	Cleaning equipment	193
	Sanitizing equipment	210
	Lubrication equipment	211
	Summary	211
	Study questions	212
Chapter 12	Waste Product Handling	213
	Strategy for waste disposal	214
	Planning the survey	214
	Solid waste disposal	218
	Liquid waste disposal	218
	Summary	233
	Study questions	233
Chapter 13	Pest Control.....	235
	Insect infestation	235
	Cockroaches.....	235
	Insect destruction	240
	Rodents	245
	Birds.....	249
	Use of pesticides	250
	Integrated pest management	252
	Summary	255
	Study questions	255
Chapter 14	Sanitary Design and Construction for Food Processing	257
	Site selection.....	257
	Site preparation	258
	Building construction considerations	258
	Processing and design considerations	260
	Pest control design	265
	Construction materials	266
	Summary	266
	Study questions	266

Chapter 15	Low-Moisture Food Manufacturing and Storage Sanitation.....	268
	Sanitary construction considerations	268
	Receipt and storage of raw materials	272
	Cleaning of low-moisture food manufacturing plants	280
	Summary	281
	Study questions	281
Chapter 16	Dairy Processing Plant Sanitation	283
	Role of pathogens	284
	Sanitary construction considerations	286
	Soil characteristics in dairy plants	287
	Sanitation principles.....	288
	Cleaning equipment	291
	Summary	296
	Study questions	296
Chapter 17	Meat and Poultry Plant Sanitation	298
	Role of sanitation.....	298
	Sanitation principles.....	306
	Cleaning compounds for meat and poultry plants	308
	Sanitizers for meat and poultry plants	309
	Sanitation practices	312
	Sanitation procedures.....	314
	Troubleshooting tips.....	324
	Summary	325
	Study questions	325
Chapter 18	Seafood Plant Sanitation	327
	Sanitary construction considerations	327
	Contamination sources.....	329
	Sanitation principles.....	330
	Recovery of by-products	334
	Summary	334
	Study questions	334
Chapter 19	Fruit and Vegetable Processing Plant Sanitation	336
	Contamination sources.....	336
	Sanitary construction considerations	338
	Cleaning considerations	340
	Cleaning of processing plants	341
	Cleaners and sanitizers.....	343
	Cleaning procedures.....	344
	Evaluation of sanitation effectiveness	346
	Summary	348
	Study questions	348

Chapter 20	Beverage Plant Sanitation	350
	Mycology of beverage manufacture	350
	Sanitation principles.....	350
	Nonalcoholic beverage plant sanitation	352
	Brewery sanitation.....	355
	Winery sanitation	361
	Distillery sanitation	367
	Summary	369
	Study questions	369
Chapter 21	Foodservice Sanitation	371
	Sanitary design.....	371
	Contamination reduction	374
	Sanitary procedures for food preparation.....	376
	Sanitation principles.....	376
	Foodservice sanitation requirements	389
	Summary	391
	Study questions	391
Chapter 22	Management and Sanitation	392
	Management requirements	392
	Employee selection	394
	Management of a sanitation operation	396
	Total quality management	400
	Summary	401
	Study questions	401
Index		406