Index

accelerated shelf life testing (ASLT),
12, 58
acceptability, 8, 10, 17, 38, 43, 49, 81, 85,
86, 89, 97, 106
acidity, 12, 58, 67, 91
active packaging, 105
Arrhenius, 13, 14, 21, 50, 109, 110
aspartame, 52, 57, 69, 110
autoxidation, 47
a,, 11, 21, 29, 53, 64, 66, 71, 84

Baranyi's non-autonomous differential equation, 20
best before, 6–9, 39, 40, 83, 95, 98
biscuits, 13, 35, 57
bloom, 13, 44
BRC Global Standard for Food Safety, 7, 15, 88, 91
breakfast cereals, 38, 50, 101, 103

Campden BRI, 17, 23-6, 29, 82, 103 canned foods, 13, 17, 73, 76 carbonated drinks, 43, 105 carbonation, 43, 87-90 carcinogens, 48 challenge testing, 15, 30-32, 38, 89, 105 chemical reactions, 12, 41 chilled foods, 14, 15, 17, 28, 31, 35, 37, 38, 74, 76, 77, 83, 103, 104 chilling injury, 46, 47 chocolate, 13, 42-4, 65, 76, 103 CIMSCEE, 30, 92-4, 111-13 CIMSCEE Calculator, 112, 113 ComBase, 17, 21-3, 27, 29, 59 commercial considerations, 12, 77 commitment, 15, 22, 40 consumer handling, 12, 76-8, 105

consumers, 1, 5–7, 16, 20, 33, 39, 50, 54, 76, 88 crystallisation, 41, 43, 44, 46

discoloration, 55, 57 display until, 8 distribution, 12, 28, 30, 31, 33, 36, 40, 43, 63, 64, 73–5, 77, 80, 81, 84, 91, 96, 98, 105 durability indication, 8, 10

electrochemical reactions, 55
emulsion, 30, 44, 45, 63, 74, 87, 90
enforcement, 9, 16
environmental factor, 11, 49
enzymic browning, 46, 53–5
equilibrium relative humidities (ERHs), 25, 44, 64, 66
ERH CALCTM, 25, 26, 66
extrinsic factors, 12, 58, 71, 76

flavour scalping, 43
Food Information Regulations, 1, 9
Food MicroModel, 21, 22
food poisoning, 31, 58, 81, 88
Food Safety Act, 2
food waste, 6, 39, 40
Forecast, 23–5, 82
freezing, 10, 13, 33, 37, 45–7, 58, 71, 73, 77, 95, 96

glass transition, 66, 67, 104 GMP, 20, 40, 72, 80, 83, 88, 91, 95 Gompertz function, 20

HACCP, 5, 27–9, 31, 59, 62, 72, 80, 82, 83, 86, 88, 89, 91, 94, 95, 97, 99 horseradish, 91–3, 111, 112

Shelf Life, Second Edition. C. M. Dominic Man.

^{© 2015} John Wiley & Sons, Ltd. Published 2015 by John Wiley & Sons, Ltd.

humidity, 11–14, 36, 37, 42, 44, 47, 57, 58, 64, 66, 73	non-enzymic browning, 53, 54
hurdle(s), 34, 69, 71, 76	orange juice, 13, 34, 35, 43, 53, 56, 71
hydrolysis, 46, 52	overages, 50, 51
aspartame, 52	oxidation, 46, 48, 69, 70
oils, fats, 52	fats, oils, 13, 47, 48, 54, 57, 63, 64, 67,
hydroperoxide, 48	76, 86, 104
hygiene, 1, 3, 5, 12, 29, 72, 80, 83, 88, 91,	flavours, 51, 52
95, 98	food pigments, 13, 49, 57
72,12	milk, 57
IFST, 1, 7, 11, 13, 17–20, 57, 59, 60, 81, 83,	phenolic compounds, 53, 54
88, 91, 95, 102	proteins, 48, 49
incubation, 12, 13	vitamins, 49, 57
infestation, 4, 11, 105	OXIDOGRAPH™, 13
interactions, 50	OXIPRES™, 13
food/product-packaging, 11, 46, 55, 106	oxygen, 11–14, 30, 33, 35, 48–50, 54, 55,
intrinsic and extrinsic factors, 12	57, 61, 70, 71
microbial, 29, 58	, , ,
vitamin-vitamin, 50, 51	packaging, 9, 11, 12, 15, 18, 19, 31, 33, 35,
intrinsic factors, 11, 62	37, 39, 42, 43, 46, 50, 55–8, 61, 62, 71,
,,,	73–5, 82, 84, 86–9, 94, 97, 98, 102,
light, 11, 12, 14, 36, 48-50, 57, 58, 73, 88, 90	105, 106
light-induced changes, 11, 57	packaging materials, 12, 33, 37, 43, 50, 56, 73
lipases, 52	packaging migration tests, 15
lipoxygenase, 48	pasteurisation, 21, 33–5, 54, 71–3, 87,
	88, 90
Maillard reaction, 53, 54, 104	pathogen modelling program (PMP), 21, 23
margarine, 13, 44, 63, 77, 95	pathogens, 20, 28, 29, 59, 63, 76, 111
mechanisms of food deterioration and	peroxide value, 85
spoilage, 11, 41	phenolase, 54
biochemical changes, 11, 35, 46, 61, 64, 69	photo-oxidation, 48, 57
chemical changes, 11, 46, 51	pH value(s), 12, 67–9
microbiological changes, 11, 16, 35, 58,	polymeric triglycerides (PT), 83. 86
84, 93, 102	potato crisps, 13, 57, 63, 65, 83, 84, 86, 103
moisture transfer, 11, 35, 42	predictive food microbiology, 20, 106
physical transfer, 11, 42, 64, 88	preservation, 12, 32, 33, 62, 69, 71–3, 101
water vapour transfer, 11, 41, 42	preservation index, 62
microbiological composition analysis (MCA), 30	preservatives, 12, 33, 35, 58, 61, 63, 69,
microbiological examination, 15, 17, 32, 38,	88, 111
81, 82, 89	processing, 10, 12, 16, 19, 20, 27, 29-31,
MicroFit, 25-7	33, 35, 39, 40, 52, 57, 58, 71–3, 76, 82,
microflora, 14, 60, 61, 70, 71	88, 98, 105
migration, 41, 95	product composition, 11, 29, 30, 37, 62,
colour, 98	76, 98
moisture, 41, 42, 44, 64	product development, 7, 18, 19, 29, 50
packaging, 11, 15, 43	product make-up, 64
minimum durability, 1, 7, 10, 39, 40	product structure, 11, 63
modified atmosphere packaging (MAP), 33,	Pseudomonas Predictor, 24
35, 61, 73, 74	Purac® Listeria Control Model, 27
mould-free shelf life (MFSL), 13, 25	PurFiltre™, 35

Q10, 110 QMS standards, 7, 20, 40

rancidity, 47, 48, 52, 57, 84–6 Ratkowsky, 21, 113 raw materials, 6, 11, 20, 33, 46, 62, 73, 98 recalls, 2, 3, 9 redox potential (E_h) , 12, 58, 69–71 response surface, 21 retail display, 12, 36, 73, 74, 98 riboflavin, 49–51, 57 risk assessment, 22, 28, 29, 107

safety margin, 82, 85, 89, 94, 97 Schaal oven test, 13 seafood spoilage and safety predictor (SSSP), 25 seal integrity, 11, 73, 86, 94, 98 sensory evaluation, 15, 17, 38, 46, 81, 89, 93, 97, 104, 105 sensory specification, 81, 85, 89, 93, 97 shelf life determination, 15, 18, 19, 27, 30, 40, 81, 85, 88, 93, 96, 98, 101, 102 shelf life extensions, 33, 35 SOPHY, 29, 30, 113 sous vide, 35, 63, 103 specifications, 19, 55, 56, 62, 75, 94 specific spoilage organisms (SSOs), 29, 60 spoilage, 2-4, 8, 11-14, 22-4, 29-33, 35, 40, 41, 58, 60-63, 72, 75-7, 81, 84, 88-90, 94, 95, 104 staling, 35, 46, 52, 95, 98 storage conditions, 2, 10, 12, 16, 32, 36, 37, 40, 44, 76, 81, 85, 88, 93, 96

average, 81, 85, 88, 93, 96 control, 81, 85, 88, 93, 96 worse, 81, 85, 88, 93, 96 storage trials, 36–8, 40, 50, 72, 74, 76, 81, 85, 88, 93, 96, 98, 105, 110 sulphite, 53, 55, 69 Sylvester test, 13 Sym'Previus, 27, 29 syneresis, 45

taint, 43, 55, 61
temperature function integration, 24, 29, 106
TetraBrik™, 13
threat assessment critical control point
(TACCP), 5
time-temperature indicators (TTIs), 35,
74, 75
tin, 13, 17, 55, 56
total polar materials (TPM), 83, 86
travel test, 82, 86, 89, 94, 97

unlacquered cans, 14 use by date, 3, 6–10, 79, 98

A, 48, 50, 51

B₁, 50, 51

B₂, 50, 51

B₁₂, 50, 51

C, 14, 50, 51, 55

E, 48, 51, 110

vitamin(s), 9, 10, 17, 49-51, 57, 105

water activity, 11, 12, 24, 27, 34, 41, 42, 53, 58, 61, 64, 65, 67, 73, 102, 106