

Contents

1	List of analyses	7
2	Grape and juice components	15
2.1	Sugars	16
2.2	Acids	19
2.3	Nitrogen and yeast nutrition	24
2.4	Cations and metals	29
2.5	Red wine phenolics	30
2.6	White wine phenolics	31
2.7	Turbidity	31
3	Alcoholic fermentation and MLF	33
3.1	Alcoholic fermentation	34
3.2	Stuck fermentations	37
3.3	Malolactic fermentation	42
4	Basic wine components	45
4.1	Alcohol, Extract, SG and Density	46
4.2	Sugars	47
4.3	Acids	48
5	Preservatives	51
5.1	Sulphur dioxide	52
5.2	Ascorbic acid	53
5.3	Sorbic acid	54
5.4	Other preservatives	54
6	Wine stability	55
6.1	Protein stability and bentonite fining	56
6.2	Tartrate stability	57
6.3	Pinking stability	61
6.4	Oxidative stability	61
6.5	Pectins and glucans	62
7	Dissolved gases	63
7.1	Carbon dioxide	64
7.2	Oxygen	64
8	Finings and additions for sensory adjustments	67
9	Cations and anions (metals and salts)	75

10	Phenolics and colour	79
11	Microbiology of cellared and bottled wines	85
11.1	Wine microbiology	86
11.2	Non-wine microbes	86
11.3	Moulds	87
11.4	Yeast	87
11.5	Bacteria	93
11.6	Microbiological analysis	96
12	Filtration	101
13	Bottling equipment	105
13.1	Bottles	106
13.2	Corks	107
13.3	Screwcaps	108
14	Export requirements	111
15	Wine aromas and sensory compounds	115
16	Flaws and faults	121
16.1	Hazes and deposits	122
16.2	Colour	124
16.3	Aroma	125
16.4	Taste	129
17	Special winemaking processes	131
17.1	Rot-infected fruit	132
17.2	Champagne style wines	133
17.3	Port style wines	139
17.4	Sherry style wines	141
17.5	Dessert wines	142
17.6	Distilled wines	144
18	Water	147
18.1	Winery Wastewater	148
18.2	Drinking water	152
19	TABLE 1: SENSORY THRESHOLDS	155
20	TABLE 2: LEGAL LIMITS	161