***Supplemental Data for:***

Sacks GL, Howe PA, Standing M and Danilewicz JC. 2020.

Free, bound, and total sulfur dioxide ($SO_2$) during oxidation of wines. Am J Enol Vitic 71:266-277. doi: 10.5344/ajev.2020.19083.

**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chard | 5 | A | N | 120 | 43 | 121 | 43 | 121 | 42 | 121 | 43 | 78 |
| Chard | 9 | A | N | 120 | 46 | 121 | 47 | 121 | 46 | 121 | 46 | 74 |
| Chard | 16 | A | N | 118 | 42 | 118 | 42 | 118 | 43 | 118 | 42 | 76 |
| Chard | 23 | A | N | 113 | 36 | 116 | 37 | 116 | 37 | 115 | 37 | 78 |
| Chard | 30 | A | N | 114 | 37 | 112 | 37 | 114 | 38 | 113 | 37 | 76 |
| Chard | 36 | A | N | 121 | 42 | 119 | 42 | 115 | 42 | 118 | 42 | 76 |
| Chard | 42 | A | N | 108 | 37 | 107 | 36 | 107 | 37 | 107 | 37 | 71 |
| Chard | 51 | A | N | 115 | 41 | 118 | 40 | 116 | 42 | 116 | 41 | 75 |
| Chard | 58 | A | N | 107 | 36 | 106 | 36 | 105 | 37 | 106 | 36 | 70 |
| Chard | 65 | A | N | 108 | 38 | 109 | 38 | 111 | 38 | 109 | 38 | 71 |
| Chard | 69 | A | N | 106 | 36 | 108 | 36 | 110 | 37 | 108 | 36 | 72 |
| Chard | 86 | A | N | 109 | 36 | 109 | 36 | 111 | 37 | 110 | 36 | 73 |
| Chard | 93 | A | N | 110 | 37 | 110 | 37 | 112 | 38 | 111 | 37 | 73 |
| Chard | 100 | A | N | 100 | 33 | 103 | 33 | 103 | 33 | 102 | 33 | 69 |
| Chard | 107 | A | N | 87 | 30 | 99 | 31 | 97 | 29 | 94 | 30 | 64 |
| Chard | 114 | A | N | 103 | 36 | 102 | 35 | 105 | 36 | 103 | 36 | 68 |
| Chard | 121 | A | N | 102 | 35 | 102 | 35 | 103 | 36 | 102 | 35 | 67 |
| Chard | 128 | A | N | 101 | 32 | 103 | 32 | 103 | 33 | 102 | 32 | 70 |
| Chard | 135 | A | N | 99 | 31 | 101 | 31 | 102 | 31 | 101 | 31 | 70 |
| Chard | 142 | A | N | 104 | 30 | 105 | 29 | 106 | 30 | 105 | 30 | 75 |
| Chard | 149 | A | N | 106 | 29 | 104 | 28 | 107 | 29 | 106 | 29 | 77 |
| Chard | 156 | A | N | 95 | 26 | 92 | 23 | 94 | 25 | 94 | 25 | 69 |
| Chard | 162 | A | N | 87 | 29 | 90 | 29 | 92 | 30 | 90 | 29 | 60 |
| Chard | 169 | A | N | 93 | 26 | 92 | 26 | 94 | 28 | 93 | 27 | 66 |
| Chard | 176 | A | N | 92 | 26 | 92 | 26 | 94 | 27 | 93 | 26 | 66 |
| Chard | 183 | A | N | 80 | 19 | 80 | 19 | 83 | 20 | 81 | 19 | 62 |
| Chard | 190 | A | N | 90 | 24 | 89 | 24 | 90 | 25 | 90 | 24 | 65 |
| Chard | 197 | A | N | 88 | 22 | 89 | 22 | 90 | 23 | 89 | 22 | 67 |
| Chard | 204 | A | N | 90 | 23 | 89 | 23 | 91 | 24 | 90 | 23 | 67 |
| Chard | 211 | A | N | 84 | 19 | 84 | 19 | 86 | 20 | 85 | 19 | 65 |
| Chard | 218 | A | N | 88 | 18 | 89 | 18 | 89 | 18 | 89 | 18 | 71 |
| Chard | 225 | A | N | 95 | 20 | 96 | 20 | 96 | 21 | 96 | 20 | 75 |
| Chard | 240 | A | N | 83 | 18 | 84 | 18 | 82 | 19 | 83 | 18 | 65 |
| Chard | 247 | A | N | 80 | 17 | 80 | 17 | 81 | 17 | 80 | 17 | 63 |
| Chard | 254 | A | N | 88 | 18 | 86 | 18 | 81 | 18 | 85 | 18 | 67 |
| Chard | 261 | A | N | 77 | 16 | 76 | 16 | 78 | 17 | 77 | 16 | 61 |
| Chard | 268 | A | N | 84 | 16 | 84 | 16 | 85 | 17 | 84 | 16 | 68 |
| Chard | 275 | A | N | 77 | 16 | 79 | 15 | 82 | 17 | 79 | 16 | 63 |
| Chard | 282 | A | N | 82 | 17 | 83 | 14 | 84 | 15 | 83 | 15 | 68 |
| Chard | 289 | A | N | 73 | 14 | 75 | 14 | 78 | 15 | 75 | 14 | 61 |
| Chard | 296 | A | N | 71 | 12 | 71 | 12 | 74 | 13 | 72 | 12 | 60 |
| Chard | 303 | A | N | 76 | 12 | 74 | 12 | 77 | 13 | 76 | 12 | 63 |
| Chard | 310 | A | N | 74 | 11 | 74 | 11 | 77 | 12 | 75 | 11 | 64 |
| Chard | 317 | A | N | 77 | 10 | 78 | 11 | 78 | 12 | 78 | 11 | 67 |
| Chard | 324 | A | N | 72 | 9 | 73 | 10 | 74 | 10 | 73 | 10 | 63 |
| Chard | 338 | A | N | 64 | 8 | 65 | 8 | 66 | 9 | 65 | 8 | 57 |
| Chard | 5 | C | N | 122 | 43 | 123 | 43 | 122 | 43 | 122 | 43 | 79 |
| Chard | 9 | C | N | 123 | 47 | 123 | 48 | 123 | 47 | 123 | 47 | 76 |
| Chard | 16 | C | N | 119 | 43 | 118 | 42 | 118 | 42 | 118 | 42 | 76 |
| Chard | 23 | C | N | 113 | 37 | 112 | 36 | 113 | 37 | 113 | 37 | 76 |
| Chard | 30 | C | N | 107 | 34 | 106 | 32 | 110 | 34 | 108 | 33 | 74 |
| Chard | 36 | C | N | 108 | 39 | 109 | 38 | 109 | 38 | 109 | 38 | 70 |
| Chard | 42 | C | N | 105 | 33 | 104 | 32 | 104 | 33 | 104 | 33 | 72 |
| Chard | 51 | C | N | 107 | 35 | 107 | 35 | 109 | 35 | 108 | 35 | 73 |
| Chard | 58 | C | N | 99 | 31 | 99 | 30 | 100 | 30 | 99 | 30 | 69 |
| Chard | 65 | C | N | 108 | 32 | 104 | 30 | 104 | 31 | 105 | 31 | 74 |
| Chard | 69 | C | N | 97 | 30 | 97 | 29 | 99 | 29 | 98 | 29 | 68 |
| Chard | 86 | C | N | 95 | 27 | 97 | 26 | 96 | 27 | 96 | 27 | 69 |
| Chard | 93 | C | N | 96 | 27 | 95 | 26 | 96 | 27 | 96 | 27 | 69 |
| Chard | 100 | C | N | 87 | 23 | 86 | 22 | 88 | 22 | 87 | 22 | 65 |
| Chard | 107 | C | N | 82 | 19 | 83 | 20 | 85 | 21 | 83 | 20 | 63 |
| Chard | 114 | C | N | 88 | 23 | 88 | 22 | 89 | 23 | 88 | 23 | 66 |
| Chard | 121 | C | N | 85 | 22 | 85 | 21 | 88 | 22 | 86 | 22 | 64 |
| Chard | 128 | C | N | 82 | 18 | 82 | 18 | 84 | 19 | 83 | 18 | 64 |
| Chard | 135 | C | N | 79 | 17 | 80 | 16 | 80 | 17 | 80 | 17 | 63 |
| Chard | 142 | C | N | 81 | 15 | 82 | 14 | 83 | 16 | 82 | 15 | 67 |
| Chard | 149 | C | N | 82 | 14 | 82 | 13 | 84 | 14 | 83 | 14 | 69 |
| Chard | 156 | C | N | 74 | 7 | 74 | 10 | 73 | 12 | 74 | 10 | 64 |
| Chard | 162 | C | N | 69 | 12 | 68 | 12 | 70 | 13 | 69 | 12 | 57 |
| Chard | 169 | C | N | 68 | 10 | 68 | 9 | 69 | 11 | 68 | 10 | 58 |
| Chard | 176 | C | N | 65 | 9 | 66 | 9 | 67 | 10 | 66 | 9 | 57 |
| Chard | 183 | C | N | 58 | 6 | 58 | 6 | 60 | 6 | 59 | 6 | 53 |
| Chard | 190 | C | N | 64 | 7 | 66 | 7 | 65 | 8 | 65 | 7 | 58 |
| Chard | 197 | C | N | 60 | 6 | 59 | 6 | 61 | 6 | 60 | 6 | 54 |
| Chard | 204 | C | N | 60 | 5 | 59 | 5 | 62 | 6 | 60 | 5 | 55 |
| Chard | 211 | C | N | 55 | 3 | 55 | 3 | 57 | 4 | 56 | 3 | 52 |
| Chard | 218 | C | N | 55 | 4 | 55 | 3 | 58 | 4 | 56 | 4 | 52 |
| Chard | 225 | C | N | 58 | 3 | 59 | 3 | 62 | 3 | 60 | 3 | 57 |
| Chard | 240 | C | N | 48 | 2 | 48 | 2 | 50 | 2 | 49 | 2 | 47 |
| Chard | 247 | C | N | 44 | 0 | 44 | 1 | 46 | 1 | 45 | 1 | 44 |
| Chard | 254 | C | N | 42 | 1 | 42 | 1 | 43 | 2 | 42 | 1 | 41 |
| Chard | 261 | C | N | 42 | 1 | 41 | 1 | 43 | 2 | 42 | 1 | 41 |
| Chard | 268 | C | N | 42 | 0 | 42 | 1 | 44 | 1 | 43 | 1 | 42 |
| Chard | 275 | C | N | 39 | 1 | 38 | 1 | 40 | 1 | 39 | 1 | 38 |
| Chard | 282 | C | N | 39 | 0 | 41 | 1 | 42 | 1 | 41 | 1 | 40 |
| Chard | 289 | C | N | 35 | 0 | 35 | 0 | 37 | 0 | 36 | 0 | 36 |
| Chard | 296 | C | N | 31 | 0 | 31 | 0 | 33 | 0 | 32 | 0 | 32 |
| Chard | 5 | D | N | 122 | 43 | 123 | 43 | 122 | 43 | 122 | 43 | 79 |
| Chard | 9 | D | N | 123 | 47 | 122 | 47 | 121 | 45 | 122 | 46 | 76 |
| Chard | 16 | D | N | 118 | 42 | 117 | 42 | 116 | 40 | 117 | 41 | 76 |
| Chard | 23 | D | N | 113 | 36 | 113 | 36 | 110 | 34 | 112 | 35 | 77 |
| Chard | 30 | D | N | 106 | 32 | 108 | 35 | 106 | 32 | 107 | 33 | 74 |
| Chard | 36 | D | N | 111 | 39 | 112 | 41 | 109 | 38 | 111 | 39 | 71 |
| Chard | 42 | D | N | 103 | 34 | 105 | 35 | 100 | 32 | 103 | 34 | 69 |
| Chard | 51 | D | N | 109 | 36 | 110 | 38 | 109 | 34 | 109 | 36 | 73 |
| Chard | 58 | D | N | 102 | 33 | 104 | 34 | 99 | 31 | 102 | 33 | 69 |
| Chard | 65 | D | N | 104 | 34 | 107 | 36 | 105 | 31 | 105 | 34 | 72 |
| Chard | 69 | D | N | 101 | 32 | 106 | 34 | 107 | 30 | 105 | 32 | 73 |
| Chard | 86 | D | N | 102 | 32 | 107 | 34 | 100 | 29 | 103 | 32 | 71 |
| Chard | 93 | D | N | 103 | 33 | 107 | 35 | 100 | 30 | 103 | 33 | 71 |
| Chard | 100 | D | N | 95 | 29 | 97 | 30 | 94 | 26 | 95 | 28 | 67 |
| Chard | 107 | D | N | 91 | 25 | 94 | 27 | 89 | 24 | 91 | 25 | 66 |
| Chard | 114 | D | N | 99 | 32 | 102 | 33 | | | 101 | 33 | 68 |
| Chard | 121 | D | N | 97 | 30 | 102 | 32 | | | 100 | 31 | 69 |
| Chard | 128 | D | N | 95 | 28 | 98 | 30 | | | 97 | 29 | 68 |
| Chard | 135 | D | N | 94 | 26 | 99 | 28 | | | 97 | 27 | 70 |
| Chard | 142 | D | N | 97 | 25 | 102 | 27 | | | 100 | 26 | 74 |

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**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chard | 149 | D | N | 99 | 25 | 103 | 27 | | | 101 | 26 | 75 |
| Chard | 156 | D | N | 87 | 22 | 96 | 24 | | | 92 | 23 | 69 |
| Chard | 162 | D | N | 88 | 26 | 91 | 28 | | | 90 | 27 | 63 |
| Chard | 169 | D | N | 86 | 22 | 89 | 24 | | | 88 | 23 | 65 |
| Chard | 176 | D | N | 86 | 22 | 90 | 24 | | | 88 | 23 | 65 |
| Chard | 183 | D | N | 76 | 16 | 80 | 18 | | | 78 | 17 | 61 |
| Chard | 190 | D | N | 88 | 20 | 89 | 22 | | | 89 | 21 | 68 |
| Chard | 197 | D | N | 82 | 19 | 85 | 20 | | | 84 | 20 | 64 |
| Chard | 204 | D | N | 87 | 20 | 90 | 23 | | | 89 | 22 | 67 |
| Chard | 211 | D | N | 80 | 17 | 83 | 20 | | | 82 | 19 | 63 |
| Chard | 218 | D | N | 86 | 16 | 89 | 19 | | | 88 | 18 | 70 |
| Chard | 225 | D | N | 92 | 17 | 96 | 20 | | | 94 | 19 | 76 |
| Chard | 240 | D | N | 44 | 1 | 79 | 16 | | | 62 | 9 | 53 |
| Chard | 247 | D | N | 74 | 14 | 78 | 16 | | | 76 | 15 | 61 |
| Chard | 254 | D | N | 74 | 15 | 80 | 17 | | | 77 | 16 | 61 |
| Chard | 261 | D | N | 76 | 14 | 80 | 17 | | | 78 | 16 | 63 |
| Chard | 268 | D | N | 78 | 13 | 85 | 16 | | | 82 | 15 | 67 |
| Chard | 275 | D | N | 75 | 14 | 80 | 17 | | | 78 | 16 | 62 |
| Chard | 282 | D | N | 79 | 13 | 85 | 15 | | | 82 | 14 | 68 |
| Chard | 289 | D | N | 71 | 12 | 76 | 15 | | | 74 | 14 | 60 |
| Chard | 296 | D | N | 68 | 11 | 72 | 13 | | | 70 | 12 | 58 |
| Chard | 303 | D | N | 73 | 11 | 77 | 13 | | | 75 | 12 | 63 |
| Chard | 310 | D | N | 70 | 10 | 76 | 12 | | | 73 | 11 | 62 |
| Chard | 317 | D | N | 74 | 9 | 78 | 12 | | | 76 | 11 | 66 |
| Chard | 324 | D | N | 69 | 9 | 74 | 11 | | | 72 | 10 | 62 |
| Chard | 5 | A | Y | 123 | 45 | 122 | 44 | | | 123 | 45 | 78 |
| Chard | 9 | A | Y | 116 | 45 | 119 | 46 | | | 118 | 46 | 72 |
| Chard | 16 | A | Y | 114 | 43 | 115 | 43 | | | 115 | 43 | 72 |
| Chard | 23 | A | Y | 110 | 35 | 110 | 34 | | | 110 | 35 | 76 |
| Chard | 30 | A | Y | 107 | 34 | 109 | 35 | | | 108 | 35 | 74 |
| Chard | 36 | A | Y | 115 | 38 | 115 | 38 | | | 115 | 38 | 77 |
| Chard | 42 | A | Y | 103 | 30 | 103 | 32 | | | 103 | 31 | 72 |
| Chard | 51 | A | Y | 104 | 38 | 103 | 38 | | | 104 | 38 | 66 |
| Chard | 58 | A | Y | 100 | 31 | 100 | 31 | | | 100 | 31 | 69 |
| Chard | 65 | A | Y | 99 | 31 | 99 | 32 | | | 99 | 32 | 68 |
| Chard | 69 | A | Y | 98 | 29 | 97 | 30 | | | 98 | 30 | 68 |
| Chard | 86 | A | Y | 94 | 25 | 91 | 24 | | | 93 | 25 | 68 |
| Chard | 93 | A | Y | 91 | 23 | 90 | 22 | | | 91 | 23 | 68 |
| Chard | 100 | A | Y | 85 | 18 | 82 | 18 | | | 84 | 18 | 66 |
| Chard | 107 | A | Y | 81 | 17 | 80 | 15 | | | 81 | 16 | 65 |
| Chard | 114 | A | Y | 81 | 16 | 80 | 17 | | | 81 | 17 | 64 |
| Chard | 121 | A | Y | 78 | 15 | 77 | 15 | | | 78 | 15 | 63 |
| Chard | 128 | A | Y | 79 | 12 | 78 | 12 | | | 79 | 12 | 67 |
| Chard | 135 | A | Y | 77 | 9 | 76 | 10 | | | 77 | 10 | 67 |
| Chard | 142 | A | Y | 81 | 8 | 80 | 8 | | | 81 | 8 | 73 |
| Chard | 149 | A | Y | 80 | 5 | 78 | 7 | | | 79 | 6 | 73 |
| Chard | 156 | A | Y | 69 | 5 | 68 | 4 | | | 69 | 5 | 64 |
| Chard | 162 | A | Y | 63 | 5 | 60 | 5 | | | 62 | 5 | 57 |
| Chard | 169 | A | Y | 64 | 3 | 63 | 4 | | | 64 | 4 | 60 |
| Chard | 176 | A | Y | 62 | 2 | 61 | 3 | | | 62 | 3 | 59 |
| Chard | 183 | A | Y | 59 | 2 | 57 | 2 | | | 58 | 2 | 56 |
| Chard | 190 | A | Y | 63 | 2 | 61 | 2 | | | 62 | 2 | 60 |
| Chard | 197 | A | Y | 58 | 1 | 57 | 1 | | | 58 | 1 | 57 |
| Chard | 204 | A | Y | 58 | 1 | 57 | 1 | | | 58 | 1 | 57 |
| Chard | 211 | A | Y | 56 | 0 | 53 | 0 | | | 55 | 0 | 55 |
| Chard | 218 | A | Y | 55 | 1 | 55 | 1 | | | 55 | 1 | 54 |
| Chard | 225 | A | Y | 59 | 0 | 56 | 0 | | | 58 | 0 | 58 |
| Chard | 240 | A | Y | 46 | 0 | 43 | 0 | | | 45 | 0 | 45 |
| Chard | 247 | A | Y | 45 | 0 | 43 | 0 | | | 44 | 0 | 44 |
| Chard | 254 | A | Y | 43 | 0 | 42 | 0 | | | 43 | 0 | 43 |
| Chard | 261 | A | Y | 42 | 0 | 39 | 0 | | | 41 | 0 | 41 |
| Chard | 268 | A | Y | 45 | 0 | 42 | 0 | | | 44 | 0 | 44 |
| Chard | 275 | A | Y | 41 | 0 | 39 | 0 | | | 40 | 0 | 40 |
| Chard | 282 | A | Y | 42 | 0 | 39 | 0 | | | 41 | 0 | 41 |
| Chard | 289 | A | Y | 39 | 0 | 36 | 0 | | | 38 | 0 | 38 |
| Chard | 296 | A | Y | 35 | 0 | 32 | 0 | | | 34 | 0 | 34 |
| Chard | 5 | C | Y | 125 | 45 | 124 | 45 | | | 125 | 45 | 80 |
| Chard | 9 | C | Y | 117 | 44 | 116 | 43 | | | 117 | 44 | 73 |
| Chard | 16 | C | Y | 110 | 37 | 109 | 36 | | | 110 | 37 | 73 |
| Chard | 23 | C | Y | 100 | 26 | 99 | 26 | | | 100 | 26 | 74 |
| Chard | 30 | C | Y | 86 | 19 | 82 | 17 | | | 84 | 18 | 66 |
| Chard | 36 | C | Y | 81 | 18 | 79 | 16 | | | 80 | 17 | 63 |
| Chard | 42 | C | Y | 73 | 12 | 72 | 11 | | | 73 | 12 | 61 |
| Chard | 51 | C | Y | 73 | 13 | 71 | 12 | | | 72 | 13 | 60 |
| Chard | 58 | C | Y | 66 | 7 | 62 | 6 | | | 64 | 7 | 58 |
| Chard | 65 | C | Y | 57 | 4 | 56 | 4 | | | 57 | 4 | 53 |
| Chard | 69 | C | Y | 53 | 2 | 48 | 2 | | | 51 | 2 | 49 |
| Chard | 86 | C | Y | 37 | 0 | 28 | 0 | | | 33 | 0 | 33 |
| Chard | 93 | C | Y | 33 | 0 | 24 | 1 | | | 29 | 1 | 28 |
| Chard | 100 | C | Y | 25 | 0 | 15 | 0 | | | 20 | 0 | 20 |
| Chard | 107 | C | Y | 20 | 0 | 11 | 1 | | | 16 | 1 | 15 |
| Chard | 114 | C | Y | 15 | 0 | 4 | 0 | | | 10 | 0 | 10 |
| Chard | 121 | C | Y | 13 | 0 | 4 | 0 | | | 9 | 0 | 9 |
| Chard | 128 | C | Y | 10 | 0 | 2 | 0 | | | 6 | 0 | 6 |
| Chard | 135 | C | Y | 7 | 0 | 0 | 0 | | | 4 | 0 | 4 |
| Chard | 142 | C | Y | 5 | 0 | 0 | 0 | | | 3 | 0 | 3 |
| Chard | 149 | C | Y | 4 | 0 | 0 | 0 | | | 2 | 0 | 2 |
| Chard | 156 | C | Y | 3 | 0 | 2 | 0 | | | 3 | 0 | 3 |
| Chard | 162 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 169 | C | Y | 1 | 0 | 0 | 0 | | | 1 | 0 | 1 |
| Chard | 176 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 183 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 190 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 197 | C | Y | 2 | 0 | 1 | 0 | | | 2 | 0 | 2 |
| Chard | 204 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 211 | C | Y | 1 | 0 | 0 | 0 | | | 1 | 0 | 1 |
| Chard | 218 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 225 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 240 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 247 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 254 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 261 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 268 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 275 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 282 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 289 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Chard | 296 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |

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| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chard | 5 | D | Y | 126 | 45 | 125 | 46 | | | 126 | 46 | 80 |
| Chard | 9 | D | Y | 118 | 44 | 115 | 42 | | | 117 | 43 | 74 |
| Chard | 16 | D | Y | 112 | 38 | 110 | 37 | | | 111 | 38 | 74 |
| Chard | 23 | D | Y | 106 | 32 | 103 | 30 | | | 105 | 31 | 74 |
| Chard | 30 | D | Y | 100 | 30 | 96 | 25 | | | 98 | 28 | 71 |
| Chard | 36 | D | Y | 100 | 32 | 98 | 30 | | | 99 | 31 | 68 |
| Chard | 42 | D | Y | 94 | 27 | 92 | 25 | | | 93 | 26 | 67 |
| Chard | 51 | D | Y | 99 | 33 | 95 | 29 | | | 97 | 31 | 66 |
| Chard | 58 | D | Y | 93 | 26 | 91 | 24 | | | 92 | 25 | 67 |
| Chard | 65 | D | Y | 96 | 26 | 91 | 24 | | | 94 | 25 | 69 |
| Chard | 69 | D | Y | 92 | 24 | 83 | 22 | | | 88 | 23 | 65 |
| Chard | 86 | D | Y | 88 | 21 | 82 | 17 | | | 85 | 19 | 66 |
| Chard | 93 | D | Y | 85 | 20 | 79 | 15 | | | 82 | 18 | 65 |
| Chard | 100 | D | Y | 78 | 16 | 73 | 12 | | | 76 | 14 | 62 |
| Chard | 107 | D | Y | 74 | 16 | 70 | 12 | | | 72 | 14 | 58 |
| Chard | 114 | D | Y | 78 | 16 | 72 | 12 | | | 75 | 14 | 61 |
| Chard | 121 | D | Y | 74 | 15 | 69 | 11 | | | 72 | 13 | 59 |
| Chard | 128 | D | Y | 73 | 12 | 68 | 9 | | | 71 | 11 | 60 |
| Chard | 135 | D | Y | 71 | 11 | 65 | 8 | | | 68 | 10 | 59 |
| Chard | 142 | D | Y | 75 | 10 | 67 | 7 | | | 71 | 9 | 63 |
| Chard | 149 | D | Y | 75 | 9 | 68 | 6 | | | 72 | 8 | 64 |
| Chard | 156 | D | Y | 66 | 8 | 60 | 4 | | | 63 | 6 | 57 |
| Chard | 162 | D | Y | 63 | 8 | 56 | 6 | | | 60 | 7 | 53 |
| Chard | 169 | D | Y | 62 | 7 | 55 | 4 | | | 59 | 6 | 53 |
| Chard | 176 | D | Y | 61 | 6 | 56 | 4 | | | 59 | 5 | 54 |
| Chard | 183 | D | Y | 55 | 4 | 51 | 3 | | | 53 | 4 | 50 |
| Chard | 190 | D | Y | 61 | 5 | 54 | 3 | | | 58 | 4 | 54 |
| Chard | 197 | D | Y | 56 | 4 | 50 | 3 | | | 53 | 4 | 50 |
| Chard | 204 | D | Y | 58 | 4 | 51 | 2 | | | 55 | 3 | 52 |
| Chard | 211 | D | Y | 54 | 2 | 49 | 1 | | | 52 | 2 | 50 |
| Chard | 218 | D | Y | 54 | 3 | 50 | 2 | | | 52 | 3 | 50 |
| Chard | 225 | D | Y | 58 | 3 | 52 | 2 | | | 55 | 3 | 53 |
| Chard | 240 | D | Y | 50 | 2 | 48 | 2 | | | 49 | 2 | 47 |
| Chard | 247 | D | Y | 45 | 1 | 40 | 1 | | | 43 | 1 | 42 |
| Chard | 254 | D | Y | 44 | 2 | 38 | 1 | | | 41 | 2 | 40 |
| Chard | 261 | D | Y | 43 | 2 | 38 | 1 | | | 41 | 2 | 39 |
| Chard | 268 | D | Y | 44 | 1 | 38 | 0 | | | 41 | 1 | 41 |
| Chard | 275 | D | Y | 41 | 1 | 35 | 1 | | | 38 | 1 | 37 |
| Chard | 282 | D | Y | 42 | 1 | 38 | 0 | | | 40 | 1 | 40 |
| Chard | 289 | D | Y | 39 | 1 | 34 | 0 | | | 37 | 1 | 36 |
| Chard | 296 | D | Y | 36 | 1 | 30 | 0 | | | 33 | 1 | 33 |
| CS | 9 | K | N | 102 | 44 | 101 | 43 | 102 | 44 | 102 | 44 | 58 |
| CS | 23 | K | N | 102 | 42 | 103 | 41 | 101 | 41 | 102 | 41 | 61 |
| CS | 29 | K | N | 99 | 40 | 95 | 40 | 100 | 40 | 98 | 40 | 58 |
| CS | 37 | K | N | 98 | 42 | 97 | 42 | 99 | 42 | 98 | 42 | 56 |
| CS | 41 | K | N | 101 | 42 | 96 | 41 | 97 | 42 | 98 | 42 | 56 |
| CS | 58 | K | N | 94 | 38 | 93 | 38 | 95 | 38 | 94 | 38 | 56 |
| CS | 65 | K | N | 91 | 40 | 92 | 39 | | | 92 | 40 | 52 |
| CS | 72 | K | N | 92 | 36 | 93 | 35 | 91 | 35 | 92 | 35 | 57 |
| CS | 79 | K | N | 89 | 42 | 90 | 41 | 92 | 42 | 90 | 42 | 49 |
| CS | 85 | K | N | 93 | 40 | 93 | 40 | 95 | 40 | 94 | 40 | 54 |
| CS | 93 | K | N | 90 | 36 | 89 | 35 | 89 | 35 | 89 | 35 | 54 |
| CS | 100 | K | N | 94 | 38 | 95 | 38 | 94 | 38 | 94 | 38 | 56 |
| CS | 107 | K | N | 85 | 34 | 85 | 33 | 85 | 33 | 85 | 33 | 52 |
| CS | 114 | K | N | 81 | 29 | 81 | 29 | 82 | 29 | 81 | 29 | 52 |
| CS | 121 | K | N | 89 | 33 | 89 | 32 | 89 | 32 | 89 | 32 | 57 |
| CS | 135 | K | N | 79 | 33 | 80 | 33 | 81 | 33 | 80 | 33 | 47 |
| CS | 142 | K | N | 80 | 30 | 80 | 30 | 81 | 30 | 80 | 30 | 50 |
| CS | 149 | K | N | 77 | 29 | 80 | 30 | 79 | 30 | 79 | 30 | 49 |
| CS | 156 | K | N | 73 | 26 | 75 | 28 | 76 | 27 | 75 | 27 | 48 |
| CS | 163 | K | N | 73 | 29 | 73 | 29 | 73 | 29 | 73 | 29 | 44 |
| CS | 170 | K | N | 78 | 29 | 78 | 30 | 79 | 29 | 78 | 29 | 49 |
| CS | 212 | K | N | 64 | 21 | 65 | 22 | 64 | 22 | 64 | 22 | 43 |
| CS | 219 | K | N | 65 | 23 | 67 | 23 | 66 | 23 | 66 | 23 | 43 |
| CS | 226 | K | N | 63 | 21 | 64 | 21 | 64 | 21 | 64 | 21 | 43 |
| CS | 233 | K | N | 62 | 19 | 62 | 20 | 61 | 20 | 62 | 20 | 42 |
| CS | 240 | K | N | 59 | 19 | 61 | 20 | 61 | 20 | 60 | 20 | 41 |
| CS | 247 | K | N | 61 | 21 | 62 | 21 | 61 | 21 | 61 | 21 | 40 |
| CS | 254 | K | N | 56 | 19 | 56 | 19 | 56 | 19 | 56 | 19 | 37 |
| CS | 261 | K | N | 56 | 18 | 57 | 18 | 58 | 18 | 57 | 18 | 39 |
| CS | 268 | K | N | 55 | 16 | 57 | 17 | 58 | 17 | 57 | 17 | 40 |
| CS | 275 | K | N | 56 | 17 | 58 | 18 | 57 | 18 | 57 | 18 | 39 |
| CS | 282 | K | N | 53 | 15 | 55 | 16 | 56 | 16 | 55 | 16 | 39 |
| CS | 289 | K | N | 56 | 15 | 57 | 16 | 58 | 16 | 57 | 16 | 41 |
| CS | 296 | K | N | 51 | 14 | 51 | 14 | 52 | 14 | 51 | 14 | 37 |
| CS | 303 | K | N | 50 | 14 | 51 | 14 | 51 | 14 | 51 | 14 | 37 |
| CS | 310 | K | N | 45 | 12 | 47 | 13 | 47 | 13 | 46 | 13 | 34 |
| CS | 324 | K | N | 42 | 12 | 45 | 13 | 45 | 13 | 44 | 13 | 31 |
| CS | 331 | K | N | 39 | 11 | 42 | 12 | 42 | 12 | 41 | 12 | 29 |
| CS | 338 | K | N | 45 | 11 | 47 | 12 | 46 | 11 | 46 | 11 | 35 |
| CS | 345 | K | N | 42 | 10 | 43 | 11 | 43 | 11 | 43 | 11 | 32 |
| CS | 352 | K | N | 38 | 10 | 41 | 11 | 41 | 11 | 40 | 11 | 29 |
| CS | 359 | K | N | 40 | 9 | 41 | 10 | 42 | 10 | 41 | 10 | 31 |
| CS | 366 | K | N | 35 | 9 | 39 | 9 | 39 | 9 | 38 | 9 | 29 |
| CS | 373 | K | N | 35 | 9 | 38 | 10 | 37 | 10 | 37 | 10 | 27 |
| CS | 387 | K | N | 33 | 8 | 36 | 8 | 35 | 8 | 35 | 8 | 27 |
| CS | 394 | K | N | 34 | 7 | 36 | 8 | 37 | 8 | 36 | 8 | 28 |
| CS | 9 | L | N | 102 | 44 | 102 | 43 | 102 | 43 | 102 | 43 | 59 |
| CS | 23 | L | N | 101 | 41 | 103 | 41 | 102 | 41 | 102 | 41 | 61 |
| CS | 29 | L | N | 98 | 38 | 101 | 37 | 98 | 38 | 99 | 38 | 61 |
| CS | 37 | L | N | 93 | 39 | 92 | 39 | 91 | 38 | 92 | 39 | 53 |
| CS | 41 | L | N | 93 | 38 | 91 | 38 | 92 | 37 | 92 | 38 | 54 |
| CS | 58 | L | N | 87 | 33 | 87 | 34 | 83 | 32 | 86 | 33 | 53 |
| CS | 65 | L | N | 83 | 34 | 84 | 34 | 81 | 33 | 83 | 34 | 49 |
| CS | 72 | L | N | 82 | 31 | 83 | 31 | 80 | 29 | 82 | 30 | 51 |
| CS | 79 | L | N | 79 | 35 | 80 | 35 | 78 | 34 | 79 | 35 | 44 |
| CS | 85 | L | N | 79 | 32 | 80 | 32 | 79 | 30 | 79 | 31 | 48 |
| CS | 93 | L | N | 75 | 28 | 77 | 28 | 75 | 26 | 76 | 27 | 48 |
| CS | 100 | L | N | 76 | 26 | 77 | 28 | 74 | 27 | 76 | 27 | 49 |
| CS | 107 | L | N | 70 | 23 | 69 | 25 | 68 | 23 | 69 | 24 | 45 |
| CS | 114 | L | N | 63 | 20 | 66 | 22 | 63 | 20 | 64 | 21 | 43 |
| CS | 121 | L | N | 65 | 21 | 66 | 22 | 64 | 20 | 65 | 21 | 44 |
| CS | 135 | L | N | 55 | 19 | 56 | 20 | 55 | 18 | 55 | 19 | 36 |

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Sacks GL, Howe PA, Standing M and Danilewicz JC. 2020.
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**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS | 142 | L | N | 53 | 16 | 56 | 18 | 53 | 16 | 54 | 17 | 37 |
| CS | 149 | L | N | 51 | 15 | 53 | 16 | 49 | 15 | 51 | 15 | 36 |
| CS | 156 | L | N | 45 | 13 | 48 | 14 | 44 | 12 | 46 | 13 | 33 |
| CS | 163 | L | N | 43 | 12 | 46 | 13 | 41 | 12 | 43 | 12 | 31 |
| CS | 170 | L | N | 43 | 11 | 47 | 13 | 43 | 11 | 44 | 12 | 33 |
| CS | 212 | L | N | 20 | 2 | 23 | 3 | 19 | 2 | 21 | 2 | 18 |
| CS | 219 | L | N | 22 | 4 | 22 | 3 | 25 | 4 | 23 | 4 | 19 |
| CS | 226 | L | N | 14 | 1 | 17 | 2 | 14 | 1 | 15 | 1 | 14 |
| CS | 233 | L | N | 12 | 1 | 15 | 1 | 11 | 1 | 13 | 1 | 12 |
| CS | 240 | L | N | 9 | 0 | 11 | 1 | 8 | 0 | 9 | 0 | 9 |
| CS | 247 | L | N | 7 | 0 | 10 | 0 | 6 | 0 | 8 | 0 | 8 |
| CS | 254 | L | N | 6 | 0 | 8 | 0 | 5 | 0 | 6 | 0 | 6 |
| CS | 261 | L | N | 3 | 0 | 6 | 0 | 4 | 0 | 4 | 0 | 4 |
| CS | 268 | L | N | 4 | 0 | 5 | 0 | 4 | 0 | 4 | 0 | 4 |
| CS | 275 | L | N | 4 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 5 |
| CS | 282 | L | N | 5 | 0 | 6 | 0 | 4 | 0 | 5 | 0 | 5 |
| CS | 289 | L | N | 3 | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 4 |
| CS | 9 | M | N | 102 | 44 | 103 | 44 | 102 | 44 | 102 | 44 | 58 |
| CS | 23 | M | N | 111 | 41 | 99 | 40 | 99 | 40 | 103 | 40 | 63 |
| CS | 29 | M | N | 98 | 38 | 99 | 38 | 99 | 38 | 99 | 38 | 61 |
| CS | 37 | M | N | 100 | 39 | 90 | 38 | 91 | 39 | 94 | 39 | 55 |
| CS | 41 | M | N | 93 | 38 | 96 | 37 | 93 | 38 | 94 | 38 | 56 |
| CS | 58 | M | N | 86 | 33 | 87 | 33 | 87 | 33 | 87 | 33 | 54 |
| CS | 65 | M | N | 80 | 34 | 82 | 34 | 83 | 34 | 82 | 34 | 48 |
| CS | 72 | M | N | 78 | 40 | 81 | 29 | 82 | 29 | 80 | 33 | 48 |
| CS | 79 | M | N | 77 | 35 | 78 | 35 | 78 | 35 | 78 | 35 | 43 |
| CS | 85 | M | N | 76 | 31 | 78 | 32 | 78 | 32 | 77 | 32 | 46 |
| CS | 93 | M | N | 72 | 27 | 73 | 26 | 73 | 27 | 73 | 27 | 46 |
| CS | 100 | M | N | 72 | 26 | 74 | 26 | 74 | 27 | 73 | 26 | 47 |
| CS | 107 | M | N | 64 | 23 | 66 | 23 | 67 | 23 | 66 | 23 | 43 |
| CS | 114 | M | N | 60 | 19 | 62 | 19 | 62 | 20 | 61 | 19 | 42 |
| CS | 121 | M | N | 62 | 19 | 63 | 20 | 65 | 20 | 63 | 20 | 44 |
| CS | 135 | M | N | 51 | 17 | 53 | 18 | 54 | 18 | 53 | 18 | 35 |
| CS | 142 | M | N | 49 | 14 | 51 | 15 | 51 | 15 | 50 | 15 | 36 |
| CS | 149 | M | N | 46 | 13 | 48 | 14 | 48 | 14 | 47 | 14 | 34 |
| CS | 156 | M | N | 40 | 10 | 43 | 11 | 43 | 12 | 42 | 11 | 31 |
| CS | 163 | M | N | 37 | 10 | 40 | 10 | 40 | 11 | 39 | 10 | 29 |
| CS | 170 | M | N | 37 | 9 | 40 | 10 | 41 | 10 | 39 | 10 | 30 |
| CS | 212 | M | N | 17 | 1 | 17 | 1 | 14 | 0 | 16 | 1 | 15 |
| CS | 219 | M | N | 7 | 0 | 9 | 0 | 8 | 0 | 8 | 0 | 8 |
| CS | 226 | M | N | 8 | 0 | 11 | 1 | 11 | 0 | 10 | 0 | 10 |
| CS | 233 | M | N | 7 | 0 | 8 | 0 | 9 | 0 | 8 | 0 | 8 |
| CS | 240 | M | N | 0 | 0 | 4 | 0 | 6 | 0 | 3 | 0 | 3 |
| CS | 247 | M | N | 4 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 5 |
| CS | 254 | M | N | 4 | 0 | 4 | 0 | 5 | 0 | 4 | 0 | 4 |
| CS | 9 | N | N | 104 | 44 | 102 | 44 | 104 | 45 | 103 | 44 | 59 |
| CS | 23 | N | N | 104 | 44 | 102 | 42 | 103 | 41 | 103 | 42 | 61 |
| CS | 29 | N | N | 108 | 41 | 104 | 41 | 101 | 41 | 104 | 41 | 63 |
| CS | 37 | N | N | 101 | 43 | 97 | 41 | 98 | 42 | 99 | 42 | 57 |
| CS | 41 | N | N | 99 | 44 | 96 | 42 | 96 | 42 | 97 | 43 | 54 |
| CS | 58 | N | N | 96 | 40 | 92 | 38 | 92 | 38 | 93 | 39 | 55 |
| CS | 65 | N | N | 93 | 41 | 91 | 39 | 92 | 40 | 92 | 40 | 52 |
| CS | 72 | N | N | 94 | 38 | 94 | 38 | 93 | 35 | 94 | 37 | 57 |
| CS | 79 | N | N | 92 | 44 | 88 | 42 | 89 | 41 | 90 | 42 | 47 |
| CS | 85 | N | N | 94 | 41 | 92 | 39 | 93 | 38 | 93 | 39 | 54 |
| CS | 93 | N | N | 90 | 37 | 88 | 34 | 88 | 34 | 89 | 35 | 54 |
| CS | 100 | N | N | 96 | 39 | 92 | 37 | 93 | 37 | 94 | 38 | 56 |
| CS | 107 | N | N | 87 | 35 | 85 | 32 | 84 | 33 | 85 | 33 | 52 |
| CS | 114 | N | N | 82 | 30 | 79 | 29 | 81 | 29 | 81 | 29 | 51 |
| CS | 121 | N | N | 89 | 33 | 86 | 30 | 86 | 31 | 87 | 31 | 56 |
| CS | 135 | N | N | 81 | 33 | 76 | 31 | 78 | 31 | 78 | 32 | 47 |
| CS | 142 | N | N | 79 | 30 | 78 | 29 | 79 | 28 | 79 | 29 | 50 |
| CS | 149 | N | N | 79 | 29 | 77 | 28 | 76 | 28 | 77 | 28 | 49 |
| CS | 156 | N | N | 74 | 26 | 71 | 26 | 70 | 26 | 72 | 26 | 46 |
| CS | 163 | N | N | 72 | 29 | 70 | 27 | 70 | 27 | 71 | 28 | 43 |
| CS | 170 | N | N | 77 | 29 | 76 | 28 | 76 | 28 | 76 | 28 | 48 |
| CS | 212 | N | N | 62 | 20 | 60 | 20 | 60 | 20 | 61 | 20 | 41 |
| CS | 219 | N | N | 65 | 21 | 62 | 21 | 62 | 20 | 63 | 21 | 42 |
| CS | 226 | N | N | 59 | 19 | 58 | 18 | 58 | 18 | 58 | 18 | 40 |
| CS | 233 | N | N | 58 | 18 | 56 | 17 | 56 | 17 | 57 | 17 | 39 |
| CS | 240 | N | N | 56 | 17 | 55 | 17 | 54 | 16 | 55 | 17 | 38 |
| CS | 247 | N | N | 57 | 19 | 57 | 18 | 56 | 18 | 57 | 18 | 38 |
| CS | 254 | N | N | 52 | 16 | 51 | 16 | 50 | 16 | 51 | 16 | 35 |
| CS | 261 | N | N | 53 | 15 | 51 | 15 | 50 | 14 | 51 | 15 | 37 |
| CS | 268 | N | N | 50 | 14 | 49 | 14 | 48 | 13 | 49 | 14 | 35 |
| CS | 275 | N | N | 51 | 14 | 50 | 14 | 48 | 14 | 50 | 14 | 36 |
| CS | 282 | N | N | 49 | 13 | 47 | 12 | 45 | 12 | 47 | 12 | 35 |
| CS | 289 | N | N | 50 | 12 | 48 | 12 | 48 | 12 | 49 | 12 | 37 |
| CS | 296 | N | N | 45 | 11 | 43 | 10 | 43 | 10 | 44 | 10 | 33 |
| CS | 303 | N | N | 45 | 11 | 43 | 10 | 43 | 10 | 44 | 10 | 33 |
| CS | 310 | N | N | 41 | 10 | 39 | 9 | 37 | 9 | 39 | 9 | 30 |
| CS | 324 | N | N | 39 | 9 | 37 | 9 | 35 | 8 | 37 | 9 | 28 |
| CS | 331 | N | N | 34 | 9 | 32 | 8 | 34 | 8 | 33 | 8 | 25 |
| CS | 338 | N | N | 37 | 8 | 37 | 8 | 36 | 7 | 37 | 8 | 29 |
| CS | 345 | N | N | 35 | 8 | 32 | 7 | 33 | 7 | 33 | 7 | 26 |
| CS | 352 | N | N | 33 | 7 | 32 | 7 | 29 | 6 | 31 | 7 | 25 |
| CS | 359 | N | N | 33 | 7 | 31 | 6 | 31 | 6 | 32 | 6 | 25 |
| CS | 366 | N | N | 29 | 6 | 28 | 5 | 27 | 5 | 28 | 5 | 23 |
| CS | 373 | N | N | 28 | 6 | 27 | 6 | 26 | 5 | 27 | 6 | 21 |
| CS | 387 | N | N | 26 | 5 | 25 | 4 | 24 | 4 | 25 | 4 | 21 |
| CS | 394 | N | N | 28 | 4 | 26 | 4 | 24 | 4 | 26 | 4 | 22 |
| CS | 9 | O | N | 102 | 44 | 101 | 43 | 102 | 44 | 102 | 44 | 58 |
| CS | 23 | O | N | 102 | 42 | 103 | 41 | 101 | 41 | 102 | 41 | 61 |
| CS | 29 | O | N | 99 | 40 | 95 | 40 | 100 | 40 | 98 | 40 | 58 |
| CS | 37 | O | N | 98 | 42 | 97 | 42 | 99 | 42 | 98 | 42 | 56 |
| CS | 41 | O | N | 101 | 42 | 96 | 41 | 97 | 42 | 98 | 42 | 56 |
| CS | 58 | O | N | 94 | 38 | 93 | 38 | 95 | 38 | 94 | 38 | 56 |
| CS | 65 | O | N | 91 | 40 | 92 | 39 | | | 92 | 40 | 52 |
| CS | 72 | O | N | 92 | 36 | 93 | 35 | 91 | 35 | 92 | 35 | 57 |
| CS | 79 | O | N | 89 | 42 | 90 | 41 | 92 | 42 | 90 | 42 | 49 |
| CS | 85 | O | N | 93 | 40 | 93 | 40 | 95 | 40 | 94 | 40 | 54 |
| CS | 93 | O | N | 90 | 36 | 89 | 35 | 89 | 35 | 89 | 35 | 54 |
| CS | 100 | O | N | 94 | 38 | 95 | 38 | 94 | 38 | 94 | 38 | 56 |
| CS | 107 | O | N | 85 | 34 | 85 | 33 | 85 | 33 | 85 | 33 | 52 |
| CS | 114 | O | N | 81 | 29 | 81 | 29 | 82 | 29 | 81 | 29 | 52 |
| CS | 121 | O | N | 89 | 33 | 89 | 32 | 89 | 32 | 89 | 32 | 57 |
| CS | 135 | O | N | 79 | 33 | 80 | 33 | 81 | 33 | 80 | 33 | 47 |
| CS | 142 | O | N | 80 | 30 | 80 | 30 | 81 | 30 | 80 | 30 | 50 |
| CS | 149 | O | N | 77 | 29 | 80 | 30 | 79 | 30 | 79 | 30 | 49 |

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Sacks GL, Howe PA, Standing M and Danilewicz JC. 2020.

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**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS | 156 | O | N | 73 | 26 | 75 | 28 | 76 | 27 | 75 | 27 | 48 |
| CS | 163 | O | N | 73 | 29 | 73 | 29 | 73 | 29 | 73 | 29 | 44 |
| CS | 170 | O | N | 78 | 29 | 78 | 30 | 79 | 29 | 78 | 29 | 49 |
| CS | 212 | O | N | 64 | 21 | 65 | 22 | 64 | 22 | 64 | 22 | 43 |
| CS | 219 | O | N | 65 | 23 | 67 | 23 | 66 | 23 | 66 | 23 | 43 |
| CS | 226 | O | N | 63 | 21 | 64 | 21 | 64 | 21 | 64 | 21 | 43 |
| CS | 233 | O | N | 62 | 19 | 62 | 20 | 61 | 20 | 62 | 20 | 42 |
| CS | 240 | O | N | 59 | 19 | 61 | 20 | 61 | 20 | 60 | 20 | 41 |
| CS | 247 | O | N | 61 | 21 | 62 | 21 | 61 | 21 | 61 | 21 | 40 |
| CS | 254 | O | N | 56 | 19 | 56 | 19 | 56 | 19 | 56 | 19 | 37 |
| CS | 261 | O | N | 56 | 18 | 57 | 18 | 58 | 18 | 57 | 18 | 39 |
| CS | 268 | O | N | 55 | 16 | 57 | 17 | 58 | 17 | 57 | 17 | 40 |
| CS | 275 | O | N | 56 | 17 | 58 | 18 | 57 | 18 | 57 | 18 | 39 |
| CS | 282 | O | N | 53 | 15 | 55 | 16 | 56 | 16 | 55 | 16 | 39 |
| CS | 289 | O | N | 56 | 15 | 57 | 16 | 58 | 16 | 57 | 16 | 41 |
| CS | 296 | O | N | 51 | 14 | 51 | 14 | 52 | 14 | 51 | 14 | 37 |
| CS | 303 | O | N | 50 | 14 | 51 | 14 | 51 | 14 | 51 | 14 | 37 |
| CS | 310 | O | N | 45 | 12 | 47 | 13 | 47 | 13 | 46 | 13 | 34 |
| CS | 324 | O | N | 42 | 12 | 45 | 13 | 45 | 13 | 44 | 13 | 31 |
| CS | 331 | O | N | 39 | 11 | 42 | 12 | 42 | 12 | 41 | 12 | 29 |
| CS | 338 | O | N | 45 | 11 | 47 | 12 | 46 | 11 | 46 | 11 | 35 |
| CS | 345 | O | N | 42 | 10 | 43 | 11 | 43 | 11 | 43 | 11 | 32 |
| CS | 352 | O | N | 38 | 10 | 41 | 11 | 41 | 11 | 40 | 11 | 29 |
| CS | 359 | O | N | 40 | 9 | 41 | 10 | 42 | 10 | 41 | 10 | 31 |
| CS | 366 | O | N | 35 | 9 | 39 | 9 | 39 | 9 | 38 | 9 | 29 |
| CS | 373 | O | N | 35 | 9 | 38 | 10 | 37 | 10 | 37 | 10 | 27 |
| CS | 387 | O | N | 33 | 8 | 36 | 8 | 35 | 8 | 35 | 8 | 27 |
| CS | 394 | O | N | 34 | 7 | 36 | 8 | 37 | 8 | 36 | 8 | 28 |
| CS | 9 | K | Y | 103 | 47 | | | | | 103 | 47 | 56 |
| CS | 23 | K | Y | 90 | 34 | | | | | 90 | 34 | 56 |
| CS | 29 | K | Y | 73 | 26 | | | | | 73 | 26 | 47 |
| CS | 37 | K | Y | 72 | 25 | | | | | 72 | 25 | 47 |
| CS | 41 | K | Y | 63 | 22 | | | | | 63 | 22 | 41 |
| CS | 58 | K | Y | 47 | 13 | | | | | 47 | 13 | 34 |
| CS | 65 | K | Y | 40 | 10 | | | | | 40 | 10 | 30 |
| CS | 72 | K | Y | 35 | 6 | | | | | 35 | 6 | 29 |
| CS | 79 | K | Y | 29 | 6 | | | | | 29 | 6 | 23 |
| CS | 85 | K | Y | 24 | 4 | | | | | 24 | 4 | 20 |
| CS | 93 | K | Y | 19 | 1 | | | | | 19 | 1 | 18 |
| CS | 100 | K | Y | 13 | 0 | | | | | 13 | 0 | 13 |
| CS | 107 | K | Y | 8 | 0 | | | | | 8 | 0 | 8 |
| CS | 114 | K | Y | 5 | 0 | | | | | 5 | 0 | 5 |
| CS | 121 | K | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 135 | K | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 142 | K | Y | 1 | 0 | | | | | 1 | 0 | 1 |
| CS | 149 | K | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 156 | K | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 163 | K | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 170 | K | Y | 3 | 0 | | | | | 3 | 0 | 3 |
| CS | 212 | K | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 9 | L | Y | 102 | 44 | | | | | 102 | 44 | 58 |
| CS | 23 | L | Y | 87 | 33 | | | | | 87 | 33 | 54 |
| CS | 29 | L | Y | 101 | 37 | | | | | 101 | 37 | 64 |
| CS | 37 | L | Y | 67 | 25 | | | | | 67 | 25 | 42 |
| CS | 41 | L | Y | 65 | 22 | | | | | 65 | 22 | 43 |
| CS | 58 | L | Y | 49 | 13 | | | | | 49 | 13 | 36 |
| CS | 65 | L | Y | 42 | 11 | | | | | 42 | 11 | 31 |
| CS | 72 | L | Y | 36 | 7 | | | | | 36 | 7 | 29 |
| CS | 79 | L | Y | 31 | 7 | | | | | 31 | 7 | 24 |
| CS | 85 | L | Y | 26 | 4 | | | | | 26 | 4 | 22 |
| CS | 93 | L | Y | 20 | 1 | | | | | 20 | 1 | 19 |
| CS | 100 | L | Y | 14 | 1 | | | | | 14 | 1 | 13 |
| CS | 107 | L | Y | 9 | 0 | | | | | 9 | 0 | 9 |
| CS | 114 | L | Y | 6 | 0 | | | | | 6 | 0 | 6 |
| CS | 121 | L | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 135 | L | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 142 | L | Y | 1 | 0 | | | | | 1 | 0 | 1 |
| CS | 149 | L | Y | 1 | 0 | | | | | 1 | 0 | 1 |
| CS | 156 | L | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 163 | L | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 170 | L | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 212 | L | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 219 | L | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 9 | M | Y | 101 | 44 | | | | | 101 | 44 | 57 |
| CS | 23 | M | Y | 87 | 32 | | | | | 87 | 32 | 55 |
| CS | 29 | M | Y | 74 | 25 | | | | | 74 | 25 | 49 |
| CS | 37 | M | Y | 68 | 23 | | | | | 68 | 23 | 45 |
| CS | 41 | M | Y | 62 | 22 | | | | | 62 | 22 | 40 |
| CS | 58 | M | Y | 45 | 11 | | | | | 45 | 11 | 34 |
| CS | 65 | M | Y | 37 | 8 | | | | | 37 | 8 | 29 |
| CS | 72 | M | Y | 31 | 4 | | | | | 31 | 4 | 27 |
| CS | 79 | M | Y | 24 | 4 | | | | | 24 | 4 | 20 |
| CS | 85 | M | Y | 18 | 2 | | | | | 18 | 2 | 16 |
| CS | 93 | M | Y | 12 | 0 | | | | | 12 | 0 | 12 |
| CS | 100 | M | Y | 8 | 0 | | | | | 8 | 0 | 8 |
| CS | 107 | M | Y | 3 | 0 | | | | | 3 | 0 | 3 |
| CS | 114 | M | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 121 | M | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 135 | M | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 142 | M | Y | 1 | 0 | | | | | 1 | 0 | 1 |
| CS | 149 | M | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 156 | M | Y | 1 | 0 | | | | | 1 | 0 | 1 |

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| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS | 163 | M | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 170 | M | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 9 | N | Y | 104 | 46 | | | | | 104 | 46 | 58 |
| CS | 23 | N | Y | 84 | 32 | | | | | 84 | 32 | 52 |
| CS | 29 | N | Y | 94 | 35 | | | | | 94 | 35 | 59 |
| CS | 37 | N | Y | 88 | 35 | | | | | 88 | 35 | 53 |
| CS | 41 | N | Y | 84 | 34 | | | | | 84 | 34 | 50 |
| CS | 58 | N | Y | 75 | 27 | | | | | 75 | 27 | 48 |
| CS | 65 | N | Y | 73 | 27 | | | | | 73 | 27 | 46 |
| CS | 72 | N | Y | 69 | 22 | | | | | 69 | 22 | 47 |
| CS | 79 | N | Y | 66 | 25 | | | | | 66 | 25 | 41 |
| CS | 85 | N | Y | 66 | 23 | | | | | 66 | 23 | 43 |
| CS | 93 | N | Y | 60 | 18 | | | | | 60 | 18 | 42 |
| CS | 100 | N | Y | 62 | 20 | | | | | 62 | 20 | 42 |
| CS | 107 | N | Y | 55 | 15 | | | | | 55 | 15 | 40 |
| CS | 114 | N | Y | 50 | 13 | | | | | 50 | 13 | 37 |
| CS | 121 | N | Y | 52 | 12 | | | | | 52 | 12 | 40 |
| CS | 135 | N | Y | 41 | 12 | | | | | 41 | 12 | 29 |
| CS | 142 | N | Y | 39 | 10 | | | | | 39 | 10 | 29 |
| CS | 149 | N | Y | 38 | 9 | | | | | 38 | 9 | 29 |
| CS | 156 | N | Y | 33 | 7 | | | | | 33 | 7 | 26 |
| CS | 163 | N | Y | 31 | 7 | | | | | 31 | 7 | 24 |
| CS | 170 | N | Y | 33 | 7 | | | | | 33 | 7 | 26 |
| CS | 212 | N | Y | 15 | 1 | | | | | 15 | 1 | 14 |
| CS | 219 | N | Y | 16 | 2 | | | | | 16 | 2 | 14 |
| CS | 226 | N | Y | 13 | 1 | | | | | 13 | 1 | 12 |
| CS | 233 | N | Y | 11 | 1 | | | | | 11 | 1 | 10 |
| CS | 240 | N | Y | 10 | 1 | | | | | 10 | 1 | 9 |
| CS | 247 | N | Y | 9 | 1 | | | | | 9 | 1 | 8 |
| CS | 254 | N | Y | 9 | 0 | | | | | 9 | 0 | 9 |
| CS | 261 | N | Y | 7 | 0 | | | | | 7 | 0 | 7 |
| CS | 268 | N | Y | 6 | 0 | | | | | 6 | 0 | 6 |
| CS | 275 | N | Y | 5 | 0 | | | | | 5 | 0 | 5 |
| CS | 282 | N | Y | 5 | 0 | | | | | 5 | 0 | 5 |
| CS | 289 | N | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 296 | N | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 9 | O | Y | 102 | 44 | | | | | 102 | 44 | 58 |
| CS | 23 | O | Y | 95 | 37 | | | | | 95 | 37 | 58 |
| CS | 29 | O | Y | 90 | 34 | | | | | 90 | 34 | 56 |
| CS | 37 | O | Y | 84 | 34 | | | | | 84 | 34 | 50 |
| CS | 41 | O | Y | 85 | 33 | | | | | 85 | 33 | 52 |
| CS | 58 | O | Y | 75 | 26 | | | | | 75 | 26 | 49 |
| CS | 65 | O | Y | 71 | 26 | | | | | 71 | 26 | 45 |
| CS | 72 | O | Y | 62 | 22 | | | | | 62 | 22 | 40 |
| CS | 79 | O | Y | 65 | 26 | | | | | 65 | 26 | 39 |
| CS | 85 | O | Y | 66 | 24 | | | | | 66 | 24 | 42 |
| CS | 93 | O | Y | 63 | 19 | | | | | 63 | 19 | 44 |
| CS | 100 | O | Y | 64 | 20 | | | | | 64 | 20 | 44 |
| CS | 107 | O | Y | 56 | 16 | | | | | 56 | 16 | 40 |
| CS | 114 | O | Y | 50 | 13 | | | | | 50 | 13 | 37 |
| CS | 121 | O | Y | 52 | 13 | | | | | 52 | 13 | 39 |
| CS | 135 | O | Y | 45 | 13 | | | | | 45 | 13 | 32 |
| CS | 142 | O | Y | 41 | 10 | | | | | 41 | 10 | 31 |
| CS | 149 | O | Y | 39 | 10 | | | | | 39 | 10 | 29 |
| CS | 156 | O | Y | 35 | 8 | | | | | 35 | 8 | 27 |
| CS | 163 | O | Y | 33 | 8 | | | | | 33 | 8 | 25 |
| CS | 170 | O | Y | 36 | 8 | | | | | 36 | 8 | 28 |
| CS | 212 | O | Y | 20 | 2 | | | | | 20 | 2 | 18 |
| CS | 219 | O | Y | 20 | 3 | | | | | 20 | 3 | 17 |
| CS | 226 | O | Y | 17 | 2 | | | | | 17 | 2 | 15 |
| CS | 233 | O | Y | 15 | 2 | | | | | 15 | 2 | 13 |
| CS | 240 | O | Y | 13 | 2 | | | | | 13 | 2 | 11 |
| CS | 247 | O | Y | 12 | 1 | | | | | 12 | 1 | 11 |
| CS | 254 | O | Y | 11 | 1 | | | | | 11 | 1 | 10 |
| CS | 261 | O | Y | 9 | 1 | | | | | 9 | 1 | 8 |
| CS | 268 | O | Y | 8 | 0 | | | | | 8 | 0 | 8 |
| CS | 275 | O | Y | 8 | 0 | | | | | 8 | 0 | 8 |
| CS | 282 | O | Y | 6 | 0 | | | | | 6 | 0 | 6 |
| CS | 289 | O | Y | 7 | 0 | | | | | 7 | 0 | 7 |
| CS | 296 | O | Y | 5 | 0 | | | | | 5 | 0 | 5 |
| CS | 303 | O | Y | 5 | 0 | | | | | 5 | 0 | 5 |
| CS | 310 | O | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 324 | O | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 331 | O | Y | 3 | 1 | | | | | 3 | 1 | 2 |
| CS | 338 | O | Y | 3 | 0 | | | | | 3 | 0 | 3 |
| CS | 345 | O | Y | 2 | 0 | | | | | 2 | 0 | 2 |
| CS | 352 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 359 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 366 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 373 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 387 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| CS | 394 | O | Y | 0 | 0 | | | | | 0 | 0 | 0 |
| Merlot | 5 | A | N | 133 | 52 | 131 | 52 | 133 | 52 | 132 | 52 | 80 |
| Merlot | 9 | A | N | 128 | 52 | 128 | 52 | 128 | 52 | 128 | 52 | 76 |
| Merlot | 16 | A | N | 122 | 47 | 122 | 47 | 122 | 47 | 122 | 47 | 75 |
| Merlot | 23 | A | N | 119 | 43 | 118 | 43 | 118 | 43 | 118 | 43 | 75 |
| Merlot | 30 | A | N | 117 | 44 | 116 | 44 | 104 | 35 | 112 | 41 | 71 |
| Merlot | 36 | A | N | 122 | 47 | 124 | 47 | 125 | 47 | 124 | 47 | 77 |
| Merlot | 42 | A | N | 119 | 43 | 115 | 45 | 115 | 46 | 116 | 45 | 72 |
| Merlot | 51 | A | N | 114 | 43 | 116 | 43 | 116 | 43 | 115 | 43 | 72 |

***Supplemental Data for:***
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**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Merlot | 58 | A | N | 106 | 35 | 109 | 35 | 104 | 33 | 106 | 34 | 72 |
| Merlot | 65 | A | N | 109 | 39 | 109 | 39 | 110 | 39 | 109 | 39 | 70 |
| Merlot | 69 | A | N | 112 | 40 | 113 | 40 | 113 | 40 | 113 | 40 | 73 |
| Merlot | 86 | A | N | 105 | 38 | 106 | 38 | 107 | 38 | 106 | 38 | 68 |
| Merlot | 93 | A | N | 100 | 38 | 100 | 38 | 102 | 38 | 101 | 38 | 63 |
| Merlot | 100 | A | N | 106 | 37 | 105 | 37 | 105 | 37 | 105 | 37 | 68 |
| Merlot | 107 | A | N | 103 | 37 | 104 | 37 | 104 | 37 | 104 | 37 | 67 |
| Merlot | 114 | A | N | 106 | 40 | 106 | 39 | 107 | 40 | 106 | 40 | 67 |
| Merlot | 121 | A | N | 103 | 37 | 104 | 37 | 103 | 37 | 103 | 37 | 66 |
| Merlot | 128 | A | N | 96 | 34 | 97 | 34 | 97 | 34 | 97 | 34 | 63 |
| Merlot | 135 | A | N | 98 | 35 | 102 | 34 | 100 | 35 | 100 | 35 | 65 |
| Merlot | 142 | A | N | 96 | 33 | 97 | 32 | 99 | 33 | 97 | 33 | 65 |
| Merlot | 149 | A | N | 97 | 33 | 97 | 32 | 97 | 32 | 97 | 32 | 65 |
| Merlot | 156 | A | N | 87 | 32 | 87 | 33 | 87 | 33 | 87 | 33 | 54 |
| Merlot | 162 | A | N | 95 | 32 | 97 | 33 | 93 | 33 | 95 | 33 | 62 |
| Merlot | 169 | A | N | 94 | 32 | 95 | 32 | 97 | 33 | 95 | 32 | 63 |
| Merlot | 176 | A | N | 93 | 33 | 94 | 33 | 94 | 34 | 94 | 33 | 60 |
| Merlot | 183 | A | N | 86 | 29 | 87 | 29 | 88 | 30 | 87 | 29 | 58 |
| Merlot | 190 | A | N | 89 | 31 | 88 | 31 | 89 | 32 | 89 | 31 | 57 |
| Merlot | 197 | A | N | 87 | 29 | 89 | 29 | 89 | 29 | 88 | 29 | 59 |
| Merlot | 204 | A | N | 85 | 29 | 87 | 29 | 87 | 30 | 86 | 29 | 57 |
| Merlot | 211 | A | N | 87 | 29 | 88 | 30 | 89 | 30 | 88 | 30 | 58 |
| Merlot | 218 | A | N | 91 | 28 | 92 | 29 | 93 | 29 | 92 | 29 | 63 |
| Merlot | 225 | A | N | 87 | 25 | 87 | 25 | 88 | 26 | 87 | 25 | 62 |
| Merlot | 240 | A | N | 77 | 24 | 80 | 25 | 80 | 25 | 79 | 25 | 54 |
| Merlot | 247 | A | N | 81 | 25 | 83 | 26 | 83 | 27 | 82 | 26 | 56 |
| Merlot | 254 | A | N | 77 | 24 | 79 | 24 | 80 | 25 | 79 | 24 | 54 |
| Merlot | 261 | A | N | 74 | 21 | 75 | 22 | 76 | 23 | 75 | 22 | 53 |
| Merlot | 268 | A | N | 70 | 21 | 71 | 21 | 71 | 22 | 71 | 21 | 49 |
| Merlot | 275 | A | N | 76 | 23 | 76 | 24 | 78 | 24 | 77 | 24 | 53 |
| Merlot | 282 | A | N | 69 | 20 | 70 | 21 | 71 | 21 | 70 | 21 | 49 |
| Merlot | 289 | A | N | 69 | 19 | 70 | 20 | 73 | 20 | 71 | 20 | 51 |
| Merlot | 296 | A | N | 66 | 19 | 67 | 19 | 68 | 20 | 67 | 19 | 48 |
| Merlot | 303 | A | N | 70 | 19 | 69 | 19 | 72 | 20 | 70 | 19 | 51 |
| Merlot | 310 | A | N | 66 | 16 | 68 | 18 | 68 | 18 | 67 | 17 | 50 |
| Merlot | 317 | A | N | 69 | 16 | 70 | 18 | 72 | 18 | 70 | 17 | 53 |
| Merlot | 324 | A | N | 63 | 16 | 65 | 16 | 66 | 17 | 65 | 16 | 48 |
| Merlot | 331 | A | N | 62 | 16 | 62 | 16 | 64 | 17 | 63 | 16 | 46 |
| Merlot | 338 | A | N | 57 | 15 | 59 | 16 | 60 | 16 | 59 | 16 | 43 |
| Merlot | 5 | C | N | 130 | 51 | 129 | 50 | 130 | 50 | 130 | 50 | 79 |
| Merlot | 9 | C | N | 128 | 52 | 126 | 51 | 126 | 51 | 127 | 51 | 75 |
| Merlot | 16 | C | N | 120 | 46 | 117 | 44 | 117 | 44 | 118 | 45 | 73 |
| Merlot | 23 | C | N | 115 | 42 | 111 | 39 | 110 | 39 | 112 | 40 | 72 |
| Merlot | 30 | C | N | 109 | 39 | 107 | 38 | 111 | 39 | 109 | 39 | 70 |
| Merlot | 36 | C | N | 114 | 42 | 112 | 41 | 115 | 41 | 114 | 41 | 72 |
| Merlot | 42 | C | N | 105 | 41 | 102 | 40 | 102 | 40 | 103 | 40 | 63 |
| Merlot | 51 | C | N | 103 | 38 | 100 | 36 | 100 | 37 | 101 | 37 | 64 |
| Merlot | 58 | C | N | 105 | 39 | 99 | 36 | 101 | 34 | 102 | 36 | 65 |
| Merlot | 65 | C | N | 96 | 33 | 94 | 31 | 92 | 31 | 94 | 32 | 62 |
| Merlot | 69 | C | N | 94 | 33 | 93 | 31 | 93 | 31 | 93 | 32 | 62 |
| Merlot | 86 | C | N | 90 | 31 | 87 | 28 | 89 | 29 | 89 | 29 | 59 |
| Merlot | 93 | C | N | 85 | 30 | 82 | 28 | 83 | 29 | 83 | 29 | 54 |
| Merlot | 100 | C | N | 86 | 28 | 93 | 26 | 86 | 28 | 88 | 27 | 61 |
| Merlot | 107 | C | N | 82 | 27 | 79 | 26 | 83 | 26 | 81 | 26 | 55 |
| Merlot | 114 | C | N | 82 | 29 | 79 | 27 | 81 | 28 | 81 | 28 | 53 |
| Merlot | 121 | C | N | 80 | 26 | 76 | 24 | 80 | 26 | 79 | 25 | 53 |
| Merlot | 128 | C | N | 74 | 23 | 72 | 21 | 76 | 23 | 74 | 22 | 52 |
| Merlot | 135 | C | N | 72 | 21 | 70 | 20 | 72 | 22 | 71 | 21 | 50 |
| Merlot | 142 | C | N | 69 | 19 | 69 | 20 | 69 | 20 | 69 | 20 | 49 |
| Merlot | 149 | C | N | 69 | 19 | 66 | 17 | 69 | 19 | 68 | 18 | 50 |
| Merlot | 156 | C | N | 53 | 18 | 52 | 16 | 56 | 18 | 54 | 17 | 36 |
| Merlot | 162 | C | N | 62 | 17 | 59 | 16 | 63 | 18 | 61 | 17 | 44 |
| Merlot | 169 | C | N | 57 | 16 | 56 | 15 | 59 | 16 | 57 | 16 | 42 |
| Merlot | 176 | C | N | 55 | 15 | 52 | 14 | 56 | 16 | 54 | 15 | 39 |
| Merlot | 183 | C | N | 49 | 13 | 48 | 12 | 51 | 13 | 49 | 13 | 37 |
| Merlot | 190 | C | N | 47 | 12 | 45 | 11 | 48 | 13 | 47 | 12 | 35 |
| Merlot | 197 | C | N | 45 | 10 | 44 | 10 | 47 | 11 | 45 | 10 | 35 |
| Merlot | 204 | C | N | 42 | 9 | 40 | 9 | 44 | 10 | 42 | 9 | 33 |
| Merlot | 211 | C | N | 41 | 9 | 40 | 8 | 45 | 10 | 42 | 9 | 33 |
| Merlot | 218 | C | N | 37 | 7 | 36 | 7 | 39 | 8 | 37 | 7 | 30 |
| Merlot | 225 | C | N | 39 | 6 | 37 | 6 | 41 | 7 | 39 | 6 | 33 |
| Merlot | 240 | C | N | 23 | 2 | 22 | 2 | 26 | 3 | 24 | 2 | 21 |
| Merlot | 247 | C | N | 23 | 3 | 21 | 2 | 26 | 4 | 23 | 3 | 20 |
| Merlot | 254 | C | N | 18 | 1 | 16 | 1 | 21 | 2 | 18 | 1 | 17 |
| Merlot | 261 | C | N | 15 | 1 | 14 | 1 | 18 | 2 | 16 | 1 | 14 |
| Merlot | 268 | C | N | 11 | 1 | 9 | 0 | 14 | 0 | 11 | 0 | 11 |
| Merlot | 275 | C | N | 10 | 1 | 8 | 0 | 13 | 1 | 10 | 1 | 10 |
| Merlot | 282 | C | N | 8 | 0 | 7 | 0 | 10 | 0 | 8 | 0 | 8 |
| Merlot | 289 | C | N | 6 | 0 | 5 | 0 | 8 | 0 | 6 | 0 | 6 |
| Merlot | 296 | C | N | 5 | 0 | 3 | 0 | 3 | 0 | 4 | 0 | 4 |
| Merlot | 5 | D | N | 125 | 49 | 131 | 50 | 128 | 48 | 128 | 49 | 79 |
| Merlot | 9 | D | N | 121 | 48 | 124 | 51 | 119 | 47 | 121 | 49 | 73 |
| Merlot | 16 | D | N | 114 | 42 | 119 | 45 | 106 | 38 | 113 | 42 | 71 |
| Merlot | 23 | D | N | 109 | 39 | 116 | 42 | 94 | 31 | 106 | 37 | 69 |
| Merlot | 30 | D | N | 103 | 35 | 109 | 38 | 83 | 25 | 98 | 33 | 66 |
| Merlot | 36 | D | N | 111 | 41 | 118 | 44 | 109 | 37 | 113 | 41 | 72 |
| Merlot | 42 | D | N | 106 | 41 | 113 | 45 | 70 | 24 | 96 | 37 | 60 |
| Merlot | 51 | D | N | 103 | 38 | 110 | 41 | 66 | 19 | 93 | 33 | 60 |
| Merlot | 58 | D | N | 99 | 36 | 107 | 39 | 57 | 16 | 88 | 30 | 57 |
| Merlot | 65 | D | N | 96 | 34 | 109 | 36 | 61 | 12 | 89 | 27 | 61 |
| Merlot | 69 | D | N | 97 | 35 | 107 | 37 | 48 | 11 | 84 | 28 | 56 |
| Merlot | 86 | D | N | 96 | 34 | 100 | 36 | 34 | 5 | 77 | 25 | 52 |
| Merlot | 93 | D | N | 93 | 34 | 99 | 36 | 30 | 4 | 74 | 25 | 49 |
| Merlot | 100 | D | N | 95 | 33 | 100 | 35 | 24 | 2 | 73 | 23 | 50 |
| Merlot | 107 | D | N | 93 | 33 | 99 | 35 | 19 | 0 | 70 | 23 | 48 |
| Merlot | 114 | D | N | 94 | 36 | 99 | 37 | 13 | 0 | 69 | 24 | 44 |
| Merlot | 121 | D | N | 94 | 34 | 101 | 35 | 10 | 0 | 68 | 23 | 45 |
| Merlot | 128 | D | N | 92 | 31 | 97 | 33 | 5 | 0 | 65 | 21 | 43 |
| Merlot | 135 | D | N | 90 | 31 | 93 | 32 | 3 | 0 | 62 | 21 | 41 |
| Merlot | 142 | D | N | 89 | 28 | 92 | 29 | 0 | 0 | 60 | 19 | 41 |
| Merlot | 149 | D | N | 91 | 29 | 95 | 30 | 0 | 0 | 62 | 20 | 42 |
| Merlot | 156 | D | N | 76 | 28 | 78 | 29 | 2 | 0 | 52 | 19 | 33 |
| Merlot | 162 | D | N | 88 | 29 | 93 | 31 | 2 | 0 | 61 | 20 | 41 |
| Merlot | 169 | D | N | 87 | 28 | 92 | 30 | 1 | 0 | 60 | 19 | 41 |
| Merlot | 176 | D | N | 85 | 29 | 89 | 31 | 2 | 1 | 59 | 20 | 38 |
| Merlot | 183 | D | N | 78 | 26 | 83 | 27 | 1 | 0 | 54 | 18 | 36 |
| Merlot | 190 | D | N | 79 | 27 | 83 | 29 | 11 | 0 | 58 | 19 | 39 |
| Merlot | 197 | D | N | 82 | 26 | 86 | 28 | 2 | 0 | 57 | 18 | 39 |
| Merlot | 204 | D | N | 78 | 25 | 83 | 27 | 3 | 0 | 55 | 17 | 37 |

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**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Merlot | 211 | D | N | 82 | 26 | 86 | 28 | 4 | 0 | 57 | 18 | 39 |
| Merlot | 218 | D | N | 81 | 25 | 85 | 27 | 2 | 0 | 56 | 17 | 39 |
| Merlot | 225 | D | N | 89 | 25 | 94 | 26 | 4 | 0 | 62 | 17 | 45 |
| Merlot | 240 | D | N | 71 | 21 | 72 | 22 | 0 | 0 | 48 | 14 | 33 |
| Merlot | 247 | D | N | 74 | 22 | 78 | 24 | 0 | 0 | 51 | 15 | 35 |
| Merlot | 254 | D | N | 70 | 21 | 57 | 22 | 0 | 0 | 42 | 14 | 28 |
| Merlot | 261 | D | N | 67 | 19 | 74 | 20 | 0 | 0 | 47 | 13 | 34 |
| Merlot | 268 | D | N | 62 | 18 | 66 | 19 | 0 | 0 | 43 | 12 | 30 |
| Merlot | 275 | D | N | 68 | 20 | 71 | 21 | 0 | 0 | 46 | 14 | 33 |
| Merlot | 282 | D | N | 61 | 17 | 66 | 19 | 0 | 0 | 42 | 12 | 30 |
| Merlot | 289 | D | N | 62 | 17 | 67 | 18 | 0 | 0 | 43 | 12 | 31 |
| Merlot | 296 | D | N | 60 | 16 | 53 | 17 | 0 | 0 | 38 | 11 | 27 |
| Merlot | 303 | D | N | 61 | 16 | 64 | 17 | 4 | 0 | 43 | 11 | 32 |
| Merlot | 310 | D | N | 50 | 11 | 50 | 11 | 58 | 14 | 53 | 12 | 41 |
| Merlot | 317 | D | N | 61 | 14 | 65 | 16 | 3 | 0 | 43 | 10 | 33 |
| Merlot | 324 | D | N | 57 | 13 | 58 | 15 | 3 | 0 | 39 | 9 | 30 |
| Merlot | 5 | A | Y | 137 | 53 | 136 | 53 | | | 137 | 53 | 84 |
| Merlot | 9 | A | Y | 128 | 52 | 126 | 51 | | | 127 | 52 | 76 |
| Merlot | 16 | A | Y | 120 | 47 | 119 | 45 | | | 120 | 46 | 74 |
| Merlot | 23 | A | Y | 114 | 41 | 112 | 40 | | | 113 | 41 | 73 |
| Merlot | 30 | A | Y | 110 | 38 | 118 | 41 | | | 114 | 40 | 75 |
| Merlot | 36 | A | Y | 111 | 40 | 107 | 39 | | | 109 | 40 | 70 |
| Merlot | 42 | A | Y | 106 | 38 | 101 | 36 | | | 104 | 37 | 67 |
| Merlot | 51 | A | Y | 99 | 35 | 97 | 34 | | | 98 | 35 | 64 |
| Merlot | 58 | A | Y | 94 | 33 | 91 | 32 | | | 93 | 33 | 60 |
| Merlot | 65 | A | Y | 91 | 29 | 86 | 28 | | | 89 | 29 | 60 |
| Merlot | 69 | A | Y | 98 | 27 | 85 | 27 | | | 92 | 27 | 65 |
| Merlot | 86 | A | Y | 80 | 25 | 78 | 25 | | | 79 | 25 | 54 |
| Merlot | 93 | A | Y | 74 | 24 | 73 | 23 | | | 74 | 24 | 50 |
| Merlot | 100 | A | Y | 75 | 21 | 73 | 21 | | | 74 | 21 | 53 |
| Merlot | 107 | A | Y | 74 | 21 | 72 | 21 | | | 73 | 21 | 52 |
| Merlot | 114 | A | Y | 71 | 21 | 69 | 21 | | | 70 | 21 | 49 |
| Merlot | 121 | A | Y | 67 | 19 | 65 | 19 | | | 66 | 19 | 47 |
| Merlot | 128 | A | Y | 58 | 14 | 56 | 14 | | | 57 | 14 | 43 |
| Merlot | 135 | A | Y | 58 | 14 | 53 | 13 | | | 56 | 14 | 42 |
| Merlot | 142 | A | Y | 53 | 11 | 50 | 11 | | | 52 | 11 | 41 |
| Merlot | 149 | A | Y | 54 | 11 | 48 | 10 | | | 51 | 11 | 41 |
| Merlot | 156 | A | Y | 44 | 9 | 39 | 8 | | | 42 | 9 | 33 |
| Merlot | 162 | A | Y | 46 | 9 | 41 | 7 | | | 44 | 8 | 36 |
| Merlot | 169 | A | Y | 42 | 8 | 36 | 7 | | | 39 | 8 | 32 |
| Merlot | 176 | A | Y | 40 | 8 | 34 | 6 | | | 37 | 7 | 30 |
| Merlot | 183 | A | Y | 35 | 5 | 30 | 4 | | | 33 | 5 | 28 |
| Merlot | 190 | A | Y | 34 | 6 | 28 | 4 | | | 31 | 5 | 26 |
| Merlot | 197 | A | Y | 33 | 5 | 24 | 3 | | | 29 | 4 | 25 |
| Merlot | 204 | A | Y | 29 | 4 | 23 | 2 | | | 26 | 3 | 23 |
| Merlot | 211 | A | Y | 29 | 4 | 23 | 3 | | | 26 | 4 | 23 |
| Merlot | 218 | A | Y | 25 | 3 | 19 | 2 | | | 22 | 3 | 20 |
| Merlot | 225 | A | Y | 27 | 3 | 20 | 1 | | | 24 | 2 | 22 |
| Merlot | 240 | A | Y | 19 | 1 | 11 | 0 | | | 15 | 1 | 15 |
| Merlot | 247 | A | Y | 18 | 2 | 10 | 1 | | | 14 | 2 | 13 |
| Merlot | 254 | A | Y | 15 | 1 | 8 | 0 | | | 12 | 1 | 11 |
| Merlot | 261 | A | Y | 13 | 1 | 6 | 0 | | | 10 | 1 | 9 |
| Merlot | 268 | A | Y | 10 | 0 | 4 | 0 | | | 7 | 0 | 7 |
| Merlot | 275 | A | Y | 9 | 1 | 4 | 0 | | | 7 | 1 | 6 |
| Merlot | 282 | A | Y | 8 | 0 | 4 | 0 | | | 6 | 0 | 6 |
| Merlot | 289 | A | Y | 10 | 0 | 4 | 0 | | | 7 | 0 | 7 |
| Merlot | 296 | A | Y | 5 | 0 | 4 | 0 | | | 5 | 0 | 5 |
| Merlot | 5 | C | Y | 131 | 53 | 136 | 52 | | | 134 | 53 | 81 |
| Merlot | 9 | C | Y | 121 | 49 | 123 | 50 | | | 122 | 50 | 73 |
| Merlot | 16 | C | Y | 107 | 38 | 106 | 38 | | | 107 | 38 | 69 |
| Merlot | 23 | C | Y | 91 | 28 | 87 | 28 | | | 89 | 28 | 61 |
| Merlot | 30 | C | Y | 78 | 22 | 82 | 25 | | | 80 | 24 | 57 |
| Merlot | 36 | C | Y | 73 | 21 | 74 | 22 | | | 74 | 22 | 52 |
| Merlot | 42 | C | Y | 59 | 17 | 62 | 18 | | | 61 | 18 | 43 |
| Merlot | 51 | C | Y | 55 | 14 | 57 | 15 | | | 56 | 15 | 42 |
| Merlot | 58 | C | Y | 44 | 10 | 45 | 10 | | | 45 | 10 | 35 |
| Merlot | 65 | C | Y | 36 | 6 | 39 | 7 | | | 38 | 7 | 31 |
| Merlot | 69 | C | Y | 33 | 5 | 34 | 6 | | | 34 | 6 | 28 |
| Merlot | 86 | C | Y | 23 | 2 | 23 | 3 | | | 23 | 3 | 21 |
| Merlot | 93 | C | Y | 17 | 0 | 17 | 1 | | | 17 | 1 | 17 |
| Merlot | 100 | C | Y | 13 | 0 | 12 | 0 | | | 13 | 0 | 13 |
| Merlot | 107 | C | Y | 9 | 0 | 9 | 1 | | | 9 | 1 | 9 |
| Merlot | 114 | C | Y | 5 | 0 | 5 | 0 | | | 5 | 0 | 5 |
| Merlot | 121 | C | Y | 3 | 0 | 3 | 0 | | | 3 | 0 | 3 |
| Merlot | 128 | C | Y | 0 | 0 | 2 | 0 | | | 1 | 0 | 1 |
| Merlot | 135 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 142 | C | Y | 0 | 0 | 3 | 0 | | | 2 | 0 | 2 |
| Merlot | 149 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 156 | C | Y | 0 | 0 | 2 | 0 | | | 1 | 0 | 1 |
| Merlot | 162 | C | Y | 0 | 0 | 1 | 0 | | | 1 | 0 | 1 |
| Merlot | 169 | C | Y | 1 | 0 | 1 | 0 | | | 1 | 0 | 1 |
| Merlot | 176 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 183 | C | Y | 1 | 0 | 1 | 0 | | | 1 | 0 | 1 |
| Merlot | 190 | C | Y | 2 | 0 | 1 | 0 | | | 2 | 0 | 2 |
| Merlot | 197 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 204 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 211 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 218 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 225 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 240 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 247 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |

***Supplemental Data for:***
Sacks GL, Howe PA, Standing M and Danilewicz JC. 2020.
Free, bound, and total sulfur dioxide ($SO_2$) during oxidation of wines. Am J Enol Vitic 71:266-277. doi: 10.5344/ajev.2020.19083.

**Supplemental Table 1** - Free, bound, and total $SO_2$ in wines during storage experiments.

| Wine | Days post-bottling | Packaging | Hi temp? | Total $SO_2$ Rep A | Free $SO_2$ Rep A | Total $SO_2$ Rep B | Free $SO_2$ Rep B | Total $SO_2$ Rep C | Free $SO_2$ Rep C | Avg Total $SO_2$ | Avg Free $SO_2$ | Avg Bound $SO_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Merlot | 254 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 261 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 268 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 275 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 282 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 289 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 296 | C | Y | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 |
| Merlot | 5 | D | Y | 131 | 52 | 134 | 52 | | | 133 | 52 | 81 |
| Merlot | 9 | D | Y | 120 | 48 | 122 | 49 | | | 121 | 49 | 73 |
| Merlot | 16 | D | Y | 111 | 40 | 111 | 40 | | | 111 | 40 | 71 |
| Merlot | 23 | D | Y | 99 | 33 | 102 | 35 | | | 101 | 34 | 67 |
| Merlot | 30 | D | Y | 95 | 31 | 94 | 29 | | | 95 | 30 | 65 |
| Merlot | 36 | D | Y | 98 | 34 | 101 | 35 | | | 100 | 35 | 65 |
| Merlot | 42 | D | Y | 89 | 31 | 92 | 32 | | | 91 | 32 | 59 |
| Merlot | 51 | D | Y | 87 | 29 | 90 | 30 | | | 89 | 30 | 59 |
| Merlot | 58 | D | Y | 80 | 27 | 82 | 27 | | | 81 | 27 | 54 |
| Merlot | 65 | D | Y | 78 | 22 | 77 | 23 | | | 78 | 23 | 55 |
| Merlot | 69 | D | Y | 79 | 22 | 77 | 22 | | | 78 | 22 | 56 |
| Merlot | 86 | D | Y | 71 | 20 | 70 | 20 | | | 71 | 20 | 51 |
| Merlot | 93 | D | Y | 66 | 12 | 66 | 19 | | | 66 | 16 | 51 |
| Merlot | 100 | D | Y | 65 | 17 | 65 | 17 | | | 65 | 17 | 48 |
| Merlot | 107 | D | Y | 64 | 19 | 64 | 18 | | | 64 | 19 | 46 |
| Merlot | 114 | D | Y | 61 | 16 | 61 | 17 | | | 61 | 17 | 45 |
| Merlot | 121 | D | Y | 58 | 14 | 56 | 14 | | | 57 | 14 | 43 |
| Merlot | 128 | D | Y | 53 | 12 | 50 | 11 | | | 52 | 12 | 40 |
| Merlot | 135 | D | Y | 50 | 11 | 47 | 10 | | | 49 | 11 | 38 |
| Merlot | 142 | D | Y | 47 | 10 | 45 | 9 | | | 46 | 10 | 37 |
| Merlot | 149 | D | Y | 47 | 9 | 44 | 8 | | | 46 | 9 | 37 |
| Merlot | 156 | D | Y | 35 | 7 | 33 | 6 | | | 34 | 7 | 28 |
| Merlot | 162 | D | Y | 39 | 8 | 34 | 6 | | | 37 | 7 | 30 |
| Merlot | 169 | D | Y | 36 | 7 | 32 | 5 | | | 34 | 6 | 28 |
| Merlot | 176 | D | Y | 32 | 5 | 30 | 5 | | | 31 | 5 | 26 |
| Merlot | 183 | D | Y | 30 | 4 | 25 | 3 | | | 28 | 4 | 24 |
| Merlot | 190 | D | Y | 29 | 4 | 24 | 3 | | | 27 | 4 | 23 |
| Merlot | 197 | D | Y | 29 | 4 | 23 | 3 | | | 26 | 4 | 23 |
| Merlot | 204 | D | Y | 26 | 3 | 21 | 2 | | | 24 | 3 | 21 |
| Merlot | 211 | D | Y | 26 | 4 | 21 | 2 | | | 24 | 3 | 21 |
| Merlot | 218 | D | Y | 22 | 2 | 16 | 1 | | | 19 | 2 | 18 |
| Merlot | 225 | D | Y | 25 | 2 | 15 | 1 | | | 20 | 2 | 19 |
| Merlot | 240 | D | Y | 13 | 0 | 9 | 0 | | | 11 | 0 | 11 |
| Merlot | 247 | D | Y | 13 | 1 | 8 | 0 | | | 11 | 1 | 10 |
| Merlot | 254 | D | Y | 10 | 0 | 6 | 0 | | | 8 | 0 | 8 |
| Merlot | 261 | D | Y | 8 | 0 | 4 | 0 | | | 6 | 0 | 6 |
| Merlot | 268 | D | Y | 6 | 0 | 3 | 0 | | | 5 | 0 | 5 |
| Merlot | 275 | D | Y | 5 | 0 | 3 | 0 | | | 4 | 0 | 4 |
| Merlot | 282 | D | Y | 5 | 0 | 4 | 0 | | | 5 | 0 | 5 |
| Merlot | 289 | D | Y | 3 | 0 | 0 | 0 | | | 2 | 0 | 2 |
| Merlot | 296 | D | Y | 3 | 0 | 3 | 0 | | | 3 | 0 | 3 |