

Supplementary Table 6. Averaged relative concentrations of 64 volatile compounds across fermentation stages in Central and East Pennsylvania regions. SD, standard deviation. S, Stages of fermentation

| 64 core volatile compounds | Central region | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Average relative concentrations | | | | | | | | | | SD | | | | | | | | | |
| | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 |
| Butanal, 3-methyl- | 0.223 | 0.168 | 0.136 | 0.120 | 0.093 | 0.093 | 0.050 | 0.029 | 0.026 | 0.023 | 0.252 | 0.124 | 0.064 | 0.088 | 0.044 | 0.040 | 0.039 | 0.009 | 0.006 | 0.007 |
| Butanoic acid, methyl ester | 0.142 | 0.159 | 0.094 | 0.070 | 0.050 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.087 | 0.116 | 0.103 | 0.103 | 0.081 | 0.038 | 0.000 | 0.000 | 0.000 | 0.000 |
| Isobutyl acetate | 0.104 | 0.108 | 0.373 | 0.417 | 0.596 | 0.734 | 0.789 | 0.751 | 0.724 | 0.711 | 0.158 | 0.102 | 0.282 | 0.456 | 0.595 | 0.689 | 0.428 | 0.438 | 0.403 | 0.320 |
| Butanoic acid, ethyl ester | 0.020 | 0.063 | 0.287 | 0.631 | 1.122 | 1.471 | 1.167 | 1.496 | 1.919 | 1.807 | 0.017 | 0.038 | 0.253 | 0.745 | 1.078 | 1.239 | 0.730 | 1.142 | 1.651 | 1.535 |
| 3-Buten-2-ol, 2-methyl- | 0.270 | 0.394 | 0.253 | 0.223 | 0.164 | 0.056 | 0.016 | 0.020 | 0.027 | 0.028 | 0.306 | 0.612 | 0.372 | 0.314 | 0.255 | 0.070 | 0.013 | 0.015 | 0.022 | 0.018 |
| 2,3-Pentanedione | 0.025 | 0.126 | 0.379 | 0.347 | 0.471 | 0.371 | 0.256 | 0.232 | 0.234 | 0.203 | 0.027 | 0.169 | 0.271 | 0.300 | 0.373 | 0.216 | 0.120 | 0.142 | 0.144 | 0.129 |
| Butanoic acid, 3-methyl-, ethyl ester | 0.004 | 0.023 | 0.026 | 0.045 | 0.068 | 0.086 | 0.070 | 0.087 | 0.109 | 0.120 | 0.005 | 0.026 | 0.014 | 0.034 | 0.034 | 0.069 | 0.038 | 0.041 | 0.043 | 0.049 |
| Hexanal | 3.695 | 2.445 | 1.766 | 2.219 | 0.937 | 0.895 | 0.026 | 0.017 | 0.011 | 0.007 | 7.260 | 4.309 | 1.828 | 2.838 | 1.819 | 1.855 | 0.057 | 0.031 | 0.018 | 0.011 |
| 1-Propanol, 2-methyl- | 1.232 | 2.086 | 3.890 | 4.656 | 7.214 | 7.746 | 6.517 | 6.169 | 6.712 | 6.647 | 1.353 | 1.068 | 1.746 | 2.713 | 4.399 | 5.269 | 1.888 | 1.399 | 1.492 | 1.572 |
| Pentane, 1-(1-ethoxyethoxy)- | 0.001 | 0.008 | 0.087 | 0.158 | 0.364 | 0.418 | 0.476 | 0.198 | 0.134 | 0.120 | 0.001 | 0.016 | 0.114 | 0.129 | 0.458 | 0.341 | 0.576 | 0.188 | 0.120 | 0.153 |

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|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1-Butanol, 3-methyl-, acetate | 0.597 | 1.184 | 6.331 | 12.237 | 16.321 | 21.501 | 21.253 | 24.086 | 24.243 | 24.211 | 0.770 | 0.961 | 6.530 | 13.697 | 18.830 | 21.867 | 5.721 | 9.003 | 9.558 | 8.288 |
| 1-Butanol | 0.038 | 0.095 | 0.082 | 0.100 | 0.128 | 0.171 | 0.161 | 0.158 | 0.182 | 0.191 | 0.035 | 0.065 | 0.056 | 0.045 | 0.089 | 0.126 | 0.094 | 0.094 | 0.078 | 0.099 |
| Acetyl valeryl | 0.010 | 0.025 | 0.134 | 0.144 | 0.137 | 0.079 | 0.090 | 0.054 | 0.060 | 0.051 | 0.016 | 0.036 | 0.202 | 0.160 | 0.163 | 0.057 | 0.063 | 0.034 | 0.026 | 0.030 |
| Acetic acid, pentyl ester | 0.004 | 0.007 | 0.015 | 0.014 | 0.010 | 0.011 | 0.013 | 0.020 | 0.014 | 0.012 | 0.006 | 0.006 | 0.008 | 0.009 | 0.004 | 0.011 | 0.017 | 0.026 | 0.019 | 0.016 |
| 2-Heptanone | 0.014 | 0.012 | 0.019 | 0.016 | 0.041 | 0.026 | 0.020 | 0.034 | 0.027 | 0.019 | 0.016 | 0.007 | 0.013 | 0.007 | 0.070 | 0.033 | 0.021 | 0.027 | 0.029 | 0.021 |
| Heptanal | 0.021 | 0.029 | 0.027 | 0.017 | 0.012 | 0.011 | 0.006 | 0.006 | 0.006 | 0.005 | 0.026 | 0.043 | 0.021 | 0.018 | 0.014 | 0.017 | 0.008 | 0.005 | 0.007 | 0.007 |
| Hexanoic acid, methyl ester | 0.021 | 0.044 | 0.120 | 0.130 | 0.157 | 0.132 | 0.143 | 0.129 | 0.130 | 0.128 | 0.021 | 0.026 | 0.096 | 0.080 | 0.069 | 0.054 | 0.072 | 0.056 | 0.035 | 0.028 |
| D-Limonene | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.019 | 0.000 |
| 1-Butanol, 3-methyl- | 12.482 | 14.793 | 31.771 | 47.644 | 79.798 | 89.131 | 84.106 | 82.020 | 90.733 | 90.076 | 7.131 | 5.645 | 12.522 | 29.368 | 54.778 | 63.519 | 42.165 | 32.727 | 34.929 | 40.475 |
| Hexanoic acid, ethyl ester | 0.066 | 0.216 | 5.643 | 9.546 | 17.224 | 16.811 | 21.774 | 23.743 | 23.482 | 21.925 | 0.131 | 0.183 | 9.517 | 14.598 | 15.248 | 13.532 | 10.502 | 18.050 | 15.268 | 10.942 |
| Benzocyclobutene | 0.004 | 0.285 | 0.816 | 0.675 | 0.720 | 0.651 | 0.358 | 0.333 | 0.334 | 0.340 | 0.005 | 0.410 | 0.929 | 0.677 | 0.504 | 0.593 | 0.217 | 0.138 | 0.114 | 0.104 |
| Acetic acid, hexyl ester | 0.121 | 0.254 | 0.724 | 0.864 | 0.889 | 0.780 | 1.629 | 1.835 | 1.480 | 1.397 | 0.111 | 0.257 | 0.599 | 0.777 | 0.777 | 0.320 | 1.487 | 1.607 | 1.450 | 1.230 |
| Acetoin | 0.183 | 0.222 | 0.431 | 0.271 | 0.134 | 0.175 | 0.080 | 0.036 | 0.048 | 0.060 | 0.261 | 0.173 | 0.265 | 0.329 | 0.092 | 0.191 | 0.139 | 0.046 | 0.060 | 0.066 |
| 1-Pentanol, 4-methyl- | 0.006 | 0.017 | 0.055 | 0.084 | 0.113 | 0.151 | 0.174 | 0.169 | 0.189 | 0.186 | 0.003 | 0.011 | 0.063 | 0.104 | 0.134 | 0.148 | 0.109 | 0.096 | 0.109 | 0.114 |

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|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1-Pentanol, 3-methyl- | 0.014 | 0.029 | 0.074 | 0.153 | 0.218 | 0.326 | 0.344 | 0.340 | 0.387 | 0.379 | 0.014 | 0.031 | 0.080 | 0.215 | 0.315 | 0.320 | 0.253 | 0.213 | 0.206 | 0.217 |
| Ethyl (S)-(-)-lactate | 0.002 | 0.003 | 0.021 | 0.034 | 0.276 | 0.440 | 0.629 | 1.195 | 2.108 | 2.554 | 0.003 | 0.003 | 0.017 | 0.048 | 0.372 | 0.559 | 0.491 | 0.489 | 0.485 | 0.550 |
| Heptanoic acid, ethyl ester | 0.008 | 0.003 | 0.040 | 0.068 | 0.502 | 0.562 | 0.733 | 1.000 | 1.127 | 1.411 | 0.018 | 0.003 | 0.028 | 0.078 | 0.596 | 0.504 | 0.858 | 1.431 | 1.713 | 2.426 |
| 2-Hexenoic acid, ethyl ester | 0.012 | 0.015 | 0.032 | 0.071 | 0.161 | 0.198 | 0.229 | 0.254 | 0.264 | 0.281 | 0.009 | 0.012 | 0.020 | 0.046 | 0.096 | 0.155 | 0.128 | 0.151 | 0.130 | 0.165 |
| 1-Hexanol | 15.130 | 21.373 | 23.242 | 17.572 | 13.772 | 13.613 | 6.799 | 6.389 | 6.686 | 6.757 | 6.361 | 16.215 | 19.478 | 11.020 | 9.398 | 11.156 | 3.092 | 3.165 | 3.288 | 3.630 |
| 1-Propanol, 3-ethoxy- | 0.027 | 0.020 | 0.051 | 0.054 | 0.197 | 0.126 | 0.086 | 0.094 | 0.120 | 0.117 | 0.037 | 0.043 | 0.056 | 0.052 | 0.336 | 0.160 | 0.090 | 0.082 | 0.117 | 0.114 |
| 3-Hexen-1-ol, (Z)- | 0.895 | 1.973 | 1.798 | 1.321 | 0.754 | 0.617 | 0.217 | 0.200 | 0.219 | 0.218 | 0.428 | 1.723 | 1.873 | 1.191 | 0.794 | 0.644 | 0.088 | 0.110 | 0.127 | 0.128 |
| Octanoic acid, methyl ester | 0.005 | 0.023 | 0.174 | 0.240 | 0.363 | 0.381 | 0.438 | 0.407 | 0.421 | 0.420 | 0.008 | 0.030 | 0.226 | 0.281 | 0.321 | 0.364 | 0.217 | 0.246 | 0.202 | 0.208 |
| 2-Hexen-1-ol, (Z)- | 0.458 | 0.921 | 0.690 | 0.658 | 0.426 | 0.305 | 0.059 | 0.044 | 0.052 | 0.054 | 0.337 | 1.272 | 0.944 | 1.020 | 0.771 | 0.535 | 0.055 | 0.043 | 0.046 | 0.051 |
| Acetic acid | 2.896 | 2.226 | 2.793 | 1.764 | 3.043 | 3.195 | 1.945 | 1.930 | 2.520 | 2.963 | 4.136 | 1.427 | 2.332 | 0.724 | 2.301 | 2.226 | 1.834 | 1.306 | 1.462 | 1.734 |
| Octanoic acid, ethyl ester | 0.070 | 0.429 | 8.894 | 18.860 | 42.339 | 42.567 | 43.429 | 46.225 | 52.670 | 47.311 | 0.065 | 0.840 | 15.813 | 32.571 | 45.571 | 46.190 | 25.361 | 38.592 | 43.068 | 32.816 |
| Isopentyl hexanoate | 0.005 | 0.009 | 0.076 | 0.148 | 0.292 | 0.315 | 0.265 | 0.249 | 0.261 | 0.233 | 0.011 | 0.017 | 0.145 | 0.280 | 0.376 | 0.378 | 0.201 | 0.174 | 0.131 | 0.099 |
| 1-Hexanol, 2-ethyl- | 0.146 | 0.113 | 0.121 | 0.124 | 0.156 | 0.155 | 0.144 | 0.185 | 0.147 | 0.145 | 0.041 | 0.028 | 0.046 | 0.054 | 0.085 | 0.062 | 0.043 | 0.101 | 0.043 | 0.044 |
| cis-Hept-4-enol | 0.003 | 0.013 | 0.026 | 0.026 | 0.032 | 0.038 | 0.036 | 0.034 | 0.038 | 0.037 | 0.003 | 0.014 | 0.018 | 0.016 | 0.021 | 0.022 | 0.019 | 0.019 | 0.019 | 0.017 |

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|--|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 2,3-Butanediol, [R-(R*,R*)]- | 0.041 | 0.029 | 0.320 | 0.472 | 1.694 | 1.970 | 1.936 | 2.476 | 2.659 | 2.909 | 0.081 | 0.035 | 0.360 | 0.545 | 1.898 | 1.752 | 0.616 | 0.799 | 0.961 | 1.070 |
| Pentanoic acid, 2-hydroxy-4-methyl-, ethyl ester | 0.002 | 0.001 | 0.004 | 0.006 | 0.024 | 0.037 | 0.063 | 0.103 | 0.147 | 0.191 | 0.002 | 0.002 | 0.003 | 0.006 | 0.026 | 0.050 | 0.043 | 0.031 | 0.041 | 0.061 |
| Linalool | 0.023 | 0.031 | 0.060 | 0.051 | 0.073 | 0.088 | 0.115 | 0.122 | 0.131 | 0.132 | 0.019 | 0.015 | 0.043 | 0.045 | 0.053 | 0.060 | 0.039 | 0.042 | 0.037 | 0.033 |
| Propanoic acid, 2-methyl- | 0.179 | 0.494 | 0.438 | 0.550 | 0.627 | 0.646 | 0.414 | 0.407 | 0.433 | 0.427 | 0.251 | 0.627 | 0.131 | 0.113 | 0.245 | 0.504 | 0.185 | 0.229 | 0.251 | 0.268 |
| 1-Octanol | 0.074 | 0.093 | 0.243 | 0.206 | 0.331 | 0.383 | 0.478 | 0.498 | 0.535 | 0.567 | 0.092 | 0.082 | 0.270 | 0.258 | 0.301 | 0.325 | 0.191 | 0.188 | 0.181 | 0.177 |
| 2,3-Butanediol, [S-(R*,R*)]- | 0.039 | 0.016 | 0.080 | 0.092 | 0.484 | 0.454 | 0.491 | 0.701 | 0.855 | 0.971 | 0.079 | 0.024 | 0.070 | 0.103 | 0.697 | 0.428 | 0.226 | 0.341 | 0.453 | 0.523 |
| Propylene Glycol | 0.001 | 0.001 | 0.003 | 0.010 | 0.052 | 0.075 | 0.058 | 0.078 | 0.098 | 0.106 | 0.002 | 0.002 | 0.002 | 0.011 | 0.059 | 0.073 | 0.018 | 0.019 | 0.026 | 0.038 |
| Decanoic acid, methyl ester | 0.000 | 0.002 | 0.082 | 0.074 | 0.215 | 0.167 | 0.152 | 0.142 | 0.166 | 0.149 | 0.001 | 0.003 | 0.140 | 0.115 | 0.226 | 0.179 | 0.093 | 0.118 | 0.116 | 0.098 |
| Butanoic acid | 0.011 | 0.040 | 0.107 | 0.133 | 0.185 | 0.198 | 0.180 | 0.196 | 0.215 | 0.209 | 0.013 | 0.033 | 0.091 | 0.105 | 0.138 | 0.132 | 0.067 | 0.083 | 0.098 | 0.072 |
| Benzaldehyde, 4-methyl- | 0.148 | 0.143 | 0.239 | 0.221 | 0.338 | 0.278 | 0.301 | 0.284 | 0.330 | 0.355 | 0.046 | 0.085 | 0.073 | 0.120 | 0.281 | 0.158 | 0.133 | 0.148 | 0.155 | 0.165 |
| Decanoic acid, ethyl ester | 0.037 | 0.112 | 2.948 | 7.800 | 31.012 | 22.833 | 18.070 | 21.349 | 28.469 | 25.442 | 0.063 | 0.133 | 4.972 | 13.215 | 36.028 | 24.792 | 12.098 | 20.275 | 27.093 | 21.419 |
| Butanoic acid, 3-methyl- | 0.127 | 0.354 | 0.387 | 0.489 | 0.548 | 0.576 | 0.445 | 0.439 | 0.466 | 0.479 | 0.158 | 0.421 | 0.233 | 0.216 | 0.323 | 0.518 | 0.175 | 0.191 | 0.232 | 0.245 |
| Butanoic acid, 2-methyl- | 0.054 | 0.200 | 0.198 | 0.250 | 0.307 | 0.288 | 0.275 | 0.254 | 0.271 | 0.275 | 0.060 | 0.219 | 0.114 | 0.118 | 0.148 | 0.166 | 0.139 | 0.112 | 0.135 | 0.142 |
| Octanoic acid, 3-methylbutyl ester | 0.004 | 0.005 | 0.102 | 0.230 | 0.503 | 0.588 | 0.497 | 0.507 | 0.614 | 0.548 | 0.008 | 0.008 | 0.195 | 0.411 | 0.623 | 0.735 | 0.373 | 0.488 | 0.521 | 0.365 |

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| | Average relative concentrations | | | | | | | | | | SD | | | | | | | | | |
|---------------------------------------|---------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 |
| Butanal, 3-methyl- | 0.054 | 0.101 | 0.102 | 0.095 | 0.083 | 0.054 | 0.039 | 0.027 | 0.027 | 0.023 | 0.021 | 0.063 | 0.058 | 0.060 | 0.035 | 0.028 | 0.017 | 0.011 | 0.009 | 0.006 |
| Butanoic acid, methyl ester | 0.131 | 0.116 | 0.086 | 0.041 | 0.012 | 0.020 | 0.013 | 0.016 | 0.020 | 0.024 | 0.116 | 0.119 | 0.076 | 0.036 | 0.013 | 0.021 | 0.014 | 0.011 | 0.014 | 0.021 |
| Isobutyl acetate | 0.030 | 0.071 | 0.179 | 0.235 | 0.380 | 0.741 | 0.638 | 0.593 | 0.523 | 0.523 | 0.025 | 0.030 | 0.049 | 0.073 | 0.076 | 0.408 | 0.456 | 0.435 | 0.237 | 0.239 |
| Butanoic acid, ethyl ester | 0.026 | 0.028 | 0.045 | 0.073 | 0.310 | 1.072 | 0.948 | 0.840 | 0.864 | 0.893 | 0.038 | 0.034 | 0.035 | 0.058 | 0.362 | 0.534 | 0.435 | 0.338 | 0.271 | 0.238 |
| 3-Buten-2-ol, 2-methyl- | 0.316 | 0.256 | 0.128 | 0.058 | 0.035 | 0.034 | 0.033 | 0.033 | 0.038 | 0.038 | 0.262 | 0.220 | 0.112 | 0.055 | 0.023 | 0.023 | 0.014 | 0.014 | 0.018 | 0.018 |
| 2,3-Pentanedione | 0.005 | 0.078 | 0.244 | 0.254 | 0.318 | 0.356 | 0.285 | 0.250 | 0.220 | 0.214 | 0.001 | 0.081 | 0.196 | 0.168 | 0.152 | 0.096 | 0.141 | 0.121 | 0.098 | 0.109 |
| Butanoic acid, 3-methyl-, ethyl ester | 0.000 | 0.004 | 0.011 | 0.013 | 0.023 | 0.061 | 0.081 | 0.098 | 0.120 | 0.138 | 0.001 | 0.004 | 0.013 | 0.011 | 0.019 | 0.034 | 0.028 | 0.040 | 0.045 | 0.062 |
| Hexanal | 0.431 | 0.226 | 0.321 | 0.154 | 0.008 | 0.019 | 0.001 | 0.001 | 0.001 | 0.001 | 0.516 | 0.342 | 0.539 | 0.263 | 0.013 | 0.037 | 0.002 | 0.002 | 0.001 | 0.002 |
| 1-Propanol, 2-methyl- | 0.451 | 1.465 | 2.566 | 2.975 | 3.496 | 7.679 | 7.044 | 6.687 | 6.753 | 6.763 | 0.315 | 0.545 | 1.261 | 1.439 | 1.482 | 2.666 | 3.167 | 2.776 | 2.565 | 2.648 |
| Pentane, 1-(1-ethoxyethoxy)- | 0.000 | 0.000 | 0.003 | 0.070 | 0.185 | 0.460 | 0.266 | 0.134 | 0.086 | 0.062 | 0.000 | 0.000 | 0.006 | 0.104 | 0.162 | 0.068 | 0.161 | 0.096 | 0.072 | 0.055 |
| 1-Butanol, 3-methyl-, acetate | 0.078 | 0.217 | 1.417 | 4.938 | 10.021 | 27.196 | 21.796 | 20.113 | 19.593 | 19.856 | 0.059 | 0.132 | 0.352 | 3.407 | 1.671 | 9.634 | 7.240 | 6.285 | 5.409 | 4.223 |
| 1-Butanol | 0.032 | 0.051 | 0.060 | 0.039 | 0.037 | 0.112 | 0.117 | 0.111 | 0.116 | 0.111 | 0.022 | 0.037 | 0.047 | 0.021 | 0.021 | 0.038 | 0.031 | 0.013 | 0.012 | 0.014 |

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|-----------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Acetyl valeryl | 0.003 | 0.006 | 0.042 | 0.214 | 0.328 | 0.107 | 0.078 | 0.056 | 0.046 | 0.034 | 0.003 | 0.006 | 0.035 | 0.277 | 0.273 | 0.082 | 0.071 | 0.046 | 0.042 | 0.029 |
| Acetic acid, pentyl ester | 0.001 | 0.011 | 0.006 | 0.009 | 0.015 | 0.017 | 0.013 | 0.011 | 0.012 | 0.011 | 0.002 | 0.014 | 0.005 | 0.011 | 0.019 | 0.013 | 0.008 | 0.008 | 0.010 | 0.009 |
| 2- Heptanone | 0.005 | 0.046 | 0.044 | 0.061 | 0.077 | 0.053 | 0.043 | 0.038 | 0.035 | 0.031 | 0.004 | 0.053 | 0.046 | 0.055 | 0.093 | 0.062 | 0.049 | 0.045 | 0.041 | 0.042 |
| Heptanal | 0.001 | 0.013 | 0.010 | 0.004 | 0.002 | 0.001 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.012 | 0.010 | 0.007 | 0.004 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 |
| Hexanoic acid, methyl ester | 0.001 | 0.010 | 0.032 | 0.042 | 0.115 | 0.123 | 0.078 | 0.072 | 0.080 | 0.085 | 0.002 | 0.009 | 0.032 | 0.027 | 0.140 | 0.081 | 0.038 | 0.028 | 0.027 | 0.031 |
| D- Limonene | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.194 | 0.148 | 0.185 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.389 | 0.297 | 0.369 |
| 1-Butanol, 3-methyl- | 3.287 | 11.558 | 22.020 | 28.469 | 40.603 | 90.325 | 82.037 | 76.819 | 81.874 | 81.389 | 2.647 | 2.381 | 9.950 | 20.460 | 24.365 | 19.050 | 21.372 | 20.533 | 17.859 | 22.137 |
| Hexanoic acid, ethyl ester | 0.009 | 0.066 | 0.452 | 2.364 | 9.571 | 25.128 | 16.827 | 14.387 | 14.467 | 15.074 | 0.016 | 0.102 | 0.524 | 2.528 | 11.565 | 15.591 | 10.376 | 5.990 | 4.543 | 5.435 |
| Benzocyclo butene | 0.029 | 0.055 | 0.109 | 0.150 | 0.202 | 0.468 | 0.280 | 0.233 | 0.255 | 0.269 | 0.050 | 0.085 | 0.121 | 0.062 | 0.058 | 0.271 | 0.150 | 0.176 | 0.203 | 0.156 |
| Acetic acid, hexyl ester | 0.055 | 0.168 | 0.405 | 0.837 | 1.363 | 2.520 | 1.553 | 1.271 | 1.134 | 1.034 | 0.068 | 0.204 | 0.204 | 0.417 | 0.273 | 1.226 | 0.717 | 0.533 | 0.694 | 0.537 |
| Acetoin | 0.044 | 0.132 | 0.318 | 0.311 | 0.400 | 0.032 | 0.033 | 0.029 | 0.036 | 0.036 | 0.051 | 0.084 | 0.152 | 0.370 | 0.470 | 0.025 | 0.022 | 0.019 | 0.024 | 0.033 |
| 1-Pentanol, 4-methyl- | 0.003 | 0.007 | 0.024 | 0.060 | 0.097 | 0.361 | 0.275 | 0.254 | 0.276 | 0.253 | 0.003 | 0.004 | 0.008 | 0.049 | 0.057 | 0.314 | 0.173 | 0.139 | 0.163 | 0.122 |
| 1-Pentanol, 3-methyl- | 0.002 | 0.009 | 0.036 | 0.061 | 0.090 | 0.352 | 0.320 | 0.307 | 0.321 | 0.302 | 0.001 | 0.003 | 0.023 | 0.057 | 0.063 | 0.292 | 0.262 | 0.219 | 0.185 | 0.174 |
| Ethyl (S)- (-)-lactate | 0.002 | 0.000 | 0.035 | 0.073 | 0.092 | 0.235 | 0.323 | 0.604 | 0.817 | 1.088 | 0.004 | 0.000 | 0.058 | 0.115 | 0.113 | 0.166 | 0.324 | 0.889 | 1.237 | 1.684 |

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|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|-------|--------|--------|--------|--------|--------|-------|
| Heptanoic acid, ethyl ester | 0.000 | 0.001 | 0.005 | 0.008 | 0.028 | 0.312 | 0.214 | 0.191 | 0.160 | 0.152 | 0.000 | 0.001 | 0.008 | 0.009 | 0.039 | 0.173 | 0.141 | 0.126 | 0.082 | 0.063 |
| 2-Hexenoic acid, ethyl ester | 0.000 | 0.002 | 0.003 | 0.003 | 0.013 | 0.153 | 0.139 | 0.139 | 0.154 | 0.161 | 0.001 | 0.002 | 0.004 | 0.002 | 0.013 | 0.127 | 0.092 | 0.072 | 0.100 | 0.095 |
| 1-Hexanol | 13.434 | 21.145 | 21.712 | 14.972 | 13.181 | 7.582 | 6.576 | 6.139 | 6.009 | 5.774 | 6.045 | 10.852 | 8.899 | 9.207 | 9.482 | 2.775 | 1.591 | 1.243 | 1.369 | 1.122 |
| 1-Propanol, 3-ethoxy- | 0.005 | 0.017 | 0.043 | 0.038 | 0.134 | 0.151 | 0.126 | 0.104 | 0.097 | 0.093 | 0.007 | 0.015 | 0.040 | 0.042 | 0.193 | 0.194 | 0.166 | 0.130 | 0.121 | 0.117 |
| 3-Hexen-1-ol, (Z)- | 0.792 | 0.915 | 0.824 | 0.484 | 0.381 | 0.203 | 0.166 | 0.163 | 0.168 | 0.161 | 0.313 | 0.289 | 0.199 | 0.298 | 0.311 | 0.131 | 0.074 | 0.075 | 0.086 | 0.078 |
| Octanoic acid, methyl ester | 0.000 | 0.001 | 0.020 | 0.070 | 0.221 | 0.422 | 0.281 | 0.235 | 0.219 | 0.221 | 0.001 | 0.002 | 0.027 | 0.061 | 0.295 | 0.256 | 0.186 | 0.082 | 0.063 | 0.063 |
| 2-Hexen-1-ol, (Z)- | 0.486 | 0.517 | 0.519 | 0.261 | 0.176 | 0.049 | 0.033 | 0.031 | 0.027 | 0.027 | 0.246 | 0.232 | 0.268 | 0.154 | 0.105 | 0.018 | 0.010 | 0.009 | 0.009 | 0.010 |
| Acetic acid | 0.579 | 1.343 | 2.136 | 1.701 | 1.646 | 3.168 | 3.160 | 3.271 | 3.338 | 3.944 | 1.002 | 1.109 | 0.646 | 0.913 | 1.108 | 1.784 | 2.314 | 2.569 | 2.791 | 3.712 |
| Octanoic acid, ethyl ester | 0.006 | 0.010 | 0.486 | 3.487 | 13.250 | 51.830 | 34.435 | 27.123 | 20.710 | 19.943 | 0.010 | 0.008 | 0.492 | 3.780 | 16.735 | 31.745 | 25.288 | 13.138 | 10.785 | 8.471 |
| Isopentyl hexanoate | 0.001 | 0.002 | 0.003 | 0.026 | 0.052 | 0.305 | 0.169 | 0.121 | 0.096 | 0.092 | 0.001 | 0.000 | 0.000 | 0.039 | 0.044 | 0.219 | 0.147 | 0.057 | 0.047 | 0.036 |
| 1-Hexanol, 2-ethyl- | 0.140 | 0.125 | 0.126 | 0.125 | 0.127 | 0.127 | 0.139 | 0.143 | 0.143 | 0.139 | 0.012 | 0.013 | 0.023 | 0.020 | 0.007 | 0.027 | 0.020 | 0.017 | 0.015 | 0.014 |
| cis-Hept-4-enol | 0.001 | 0.006 | 0.021 | 0.025 | 0.031 | 0.047 | 0.053 | 0.052 | 0.051 | 0.052 | 0.002 | 0.006 | 0.012 | 0.010 | 0.019 | 0.028 | 0.029 | 0.024 | 0.020 | 0.019 |
| 2,3-Butanediol, [R-(R*,R*)]- | 0.002 | 0.017 | 0.075 | 0.245 | 0.694 | 3.638 | 2.346 | 2.363 | 2.460 | 2.004 | 0.004 | 0.015 | 0.090 | 0.273 | 0.741 | 2.619 | 1.341 | 1.012 | 0.891 | 0.550 |
| Pentanoic acid, 2-hydroxy-4-methyl-, ethyl ester | 0.001 | 0.002 | 0.002 | 0.003 | 0.012 | 0.034 | 0.077 | 0.118 | 0.162 | 0.197 | 0.002 | 0.003 | 0.003 | 0.002 | 0.012 | 0.026 | 0.034 | 0.056 | 0.057 | 0.060 |

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|------------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|
| Linalool | 0.007 | 0.014 | 0.023 | 0.052 | 0.066 | 0.099 | 0.110 | 0.104 | 0.097 | 0.102 | 0.006 | 0.010 | 0.006 | 0.033 | 0.031 | 0.017 | 0.015 | 0.025 | 0.028 | 0.026 |
| Propanoic acid, 2-methyl- | 0.036 | 0.333 | 0.447 | 0.259 | 0.284 | 0.443 | 0.399 | 0.388 | 0.356 | 0.354 | 0.058 | 0.269 | 0.390 | 0.072 | 0.054 | 0.202 | 0.261 | 0.206 | 0.161 | 0.160 |
| 1-Octanol | 0.029 | 0.395 | 0.563 | 0.702 | 0.948 | 0.955 | 0.953 | 1.087 | 1.060 | 1.113 | 0.039 | 0.649 | 0.847 | 0.956 | 0.747 | 0.963 | 0.848 | 1.047 | 1.041 | 1.092 |
| 2,3-Butanediol, [S-(R*,R*)]- | 0.006 | 0.011 | 0.016 | 0.044 | 0.103 | 0.988 | 0.615 | 0.712 | 0.796 | 0.722 | 0.010 | 0.015 | 0.014 | 0.048 | 0.071 | 0.628 | 0.299 | 0.254 | 0.238 | 0.438 |
| Propylene Glycol | 0.000 | 0.000 | 0.000 | 0.000 | 0.006 | 0.126 | 0.072 | 0.079 | 0.091 | 0.073 | 0.000 | 0.000 | 0.000 | 0.000 | 0.011 | 0.103 | 0.041 | 0.029 | 0.035 | 0.032 |
| Decanoic acid, methyl ester | 0.001 | 0.002 | 0.007 | 0.018 | 0.081 | 0.240 | 0.149 | 0.111 | 0.088 | 0.078 | 0.001 | 0.001 | 0.004 | 0.011 | 0.109 | 0.115 | 0.107 | 0.074 | 0.070 | 0.060 |
| Butanoic acid | 0.002 | 0.017 | 0.035 | 0.039 | 0.073 | 0.124 | 0.128 | 0.133 | 0.144 | 0.153 | 0.001 | 0.006 | 0.023 | 0.027 | 0.052 | 0.070 | 0.034 | 0.061 | 0.077 | 0.085 |
| Benzaldehyde, 4-methyl- | 0.119 | 0.155 | 0.204 | 0.225 | 0.261 | 0.301 | 0.306 | 0.304 | 0.279 | 0.261 | 0.037 | 0.023 | 0.046 | 0.040 | 0.081 | 0.110 | 0.075 | 0.091 | 0.040 | 0.066 |
| Decanoic acid, ethyl ester | 0.000 | 0.030 | 0.160 | 0.867 | 5.072 | 24.886 | 16.740 | 12.808 | 8.878 | 7.964 | 0.000 | 0.053 | 0.226 | 0.853 | 7.083 | 15.243 | 13.642 | 8.683 | 7.885 | 6.895 |
| Butanoic acid, 3-methyl- | 0.031 | 0.267 | 0.336 | 0.270 | 0.389 | 0.635 | 0.542 | 0.534 | 0.525 | 0.529 | 0.054 | 0.247 | 0.330 | 0.090 | 0.169 | 0.330 | 0.308 | 0.283 | 0.249 | 0.253 |
| Butanoic acid, 2-methyl- | 0.005 | 0.077 | 0.134 | 0.199 | 0.256 | 0.443 | 0.365 | 0.379 | 0.374 | 0.383 | 0.009 | 0.044 | 0.090 | 0.195 | 0.173 | 0.164 | 0.187 | 0.224 | 0.223 | 0.245 |
| Octanoic acid, 3-methylbutyl ester | 0.001 | 0.001 | 0.001 | 0.047 | 0.129 | 0.585 | 0.369 | 0.271 | 0.192 | 0.163 | 0.000 | 0.001 | 0.001 | 0.074 | 0.130 | 0.472 | 0.347 | 0.165 | 0.158 | 0.142 |
| Butanedioic acid, diethyl ester | 0.000 | 0.000 | 0.000 | 0.004 | 0.016 | 0.179 | 0.209 | 0.276 | 0.361 | 0.430 | 0.001 | 0.000 | 0.000 | 0.006 | 0.020 | 0.083 | 0.115 | 0.139 | 0.208 | 0.192 |
| Ethyl 9-decenoate | 0.000 | 0.001 | 0.004 | 0.017 | 0.045 | 0.361 | 0.295 | 0.230 | 0.127 | 0.110 | 0.001 | 0.001 | 0.004 | 0.018 | 0.043 | 0.395 | 0.397 | 0.292 | 0.070 | 0.062 |

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|--|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 1-Propanol, 3-(methylthio)- | 0.000 | 0.012 | 0.106 | 0.184 | 0.274 | 0.683 | 0.549 | 0.475 | 0.502 | 0.489 | 0.000 | 0.018 | 0.025 | 0.060 | 0.051 | 0.224 | 0.188 | 0.176 | 0.207 | 0.142 |
| 1,2-Cyclopentanedione | 0.398 | 0.224 | 0.329 | 0.247 | 0.100 | 1.365 | 1.371 | 1.190 | 1.044 | 0.989 | 0.521 | 0.041 | 0.121 | 0.105 | 0.012 | 0.856 | 1.150 | 0.728 | 0.777 | 0.390 |
| Acetic acid, 2-phenylethyl ester | 0.008 | 0.018 | 0.132 | 1.006 | 1.900 | 3.737 | 2.863 | 2.690 | 2.096 | 2.018 | 0.008 | 0.018 | 0.108 | 1.116 | 1.241 | 1.895 | 2.054 | 1.696 | 1.139 | 1.070 |
| 2-Buten-1-one, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-, (E)- | 0.086 | 0.096 | 0.091 | 0.107 | 0.123 | 0.078 | 0.108 | 0.125 | 0.140 | 0.146 | 0.056 | 0.068 | 0.058 | 0.034 | 0.022 | 0.012 | 0.043 | 0.056 | 0.059 | 0.064 |
| Hexanoic acid | 0.027 | 0.159 | 0.369 | 0.450 | 1.050 | 1.430 | 1.306 | 1.278 | 1.337 | 1.375 | 0.024 | 0.163 | 0.347 | 0.265 | 1.262 | 0.873 | 0.705 | 0.596 | 0.508 | 0.528 |
| Dodecanoic acid, ethyl ester | 0.007 | 0.010 | 0.026 | 0.147 | 0.768 | 3.647 | 2.367 | 1.821 | 1.314 | 1.199 | 0.006 | 0.006 | 0.014 | 0.173 | 1.029 | 1.858 | 1.767 | 1.336 | 1.124 | 1.116 |
| Benzyl alcohol | 0.003 | 0.012 | 0.019 | 0.018 | 0.024 | 0.043 | 0.043 | 0.040 | 0.039 | 0.041 | 0.004 | 0.011 | 0.016 | 0.015 | 0.021 | 0.020 | 0.020 | 0.020 | 0.016 | 0.013 |
| Phenylethyl Alcohol | 0.025 | 0.120 | 1.184 | 8.240 | 11.796 | 39.496 | 35.404 | 32.381 | 32.152 | 33.001 | 0.043 | 0.163 | 0.597 | 12.348 | 10.455 | 13.023 | 11.608 | 11.984 | 10.221 | 13.604 |
| Heptanoic acid | 0.003 | 0.010 | 0.011 | 0.012 | 0.013 | 0.011 | 0.011 | 0.011 | 0.010 | 0.012 | 0.003 | 0.009 | 0.010 | 0.011 | 0.012 | 0.013 | 0.011 | 0.013 | 0.012 | 0.014 |
| (E)-2-Hexenoic acid | 0.014 | 0.035 | 0.021 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.018 | 0.043 | 0.019 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 0.002 | 0.003 |