Supplemental Table 1. Effect of temperature and ionic strength on dissolved oxygen concentration.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Equilibrium Dissolved [O2]\* (mM) | | | | | |
| T (°C) | IS: 0 mM | IS: 100 mM | IS: 150 mM | **IS: 175 mM** | IS: 200 mM | IS: 300 mM |
| 5 | 0.398 | 0.383 | 0.376 | 0.373 | 0.369 | 0.354 |
| 10 | 0.352 | 0.338 | 0.332 | 0.329 | 0.326 | 0.314 |
| 15 | 0.316 | 0.304 | 0.299 | 0.296 | 0.293 | 0.282 |
| 20 | 0.284 | 0.274 | 0.269 | 0.267 | 0.264 | 0.256 |
| 25 | 0.258 | 0.248 | 0.244 | 0.242 | 0.240 | 0.234 |
| 30 | 0.236 | 0.228 | 0.224 | 0.222 | 0.220 | 0.214 |
| 35 | 0.214 | 0.206 | 0.203 | 0.201 | 0.200 | 0.194 |
| **37** | **0.206** | **0.199** | **0.196** | **0.194** | **0.192** |  |
| 40 | 0.194 | 0.187 | 0.183 | 0.182 | 0.180 | 0.175 |

\*at sea level with 100% humidity (gaseous O2 = 19.7%)

Numbers in gray shaded boxes are extrapolated from other values in chart. The data presented were experimentally determined by [1]

Supplementary Table 2. Medium volume equivalencies for various culture plates

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Medium Height (mm) | | | | | | | | |  |
| Culture Product | Surface  Area (cm2) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
| 1536 Well Plate | 0.025 | 0.0025 | 0.005 | 0.0075 | 0.01 | 0.0125 | 0.015 | 0.0175 | 0.02 | 0.0225 | V  o  l  u  m  e  (ml) |
| 384 Well Plate | 0.056 | 0.0056 | 0.0112 | 0.0168 | 0.0224 | 0.028 | 0.0336 | 0.0392 | 0.0448 | 0.0504 |
| 96 Well Plate | 0.32 | 0.032 | 0.064 | 0.96 | 0.128 | 0.16 | 0.192 | 0.224 | 0.256 | 0.288 |
| 48 Well Plate | 0.95 | 0.95 | 0.19 | 0.285 | 0.38 | 0.475 | 0.57 | 0.665 | 0.76 | 0.855 |
| 24 Well Plate | 1.9 | 0.19 | 0.38 | 0.57 | 0.76 | 0.95 | 1.14 | 1.33 | 1.52 | 1.71 |
| 12 Well Plate | 3.8 | 0.38 | 0.76 | 1.14 | 1.52 | 1.9 | 2.28 | 2.66 | 3.04 | 3.42 |
| 6 Well Plate | 9.5 | 0.95 | 1.9 | 2.85 | 3.8 | 4.75 | 5.7 | 6.65 | 7.6 | 8.55 |
| 35mm Dish | 9 | 0.9 | 1.8 | 2.7 | 3.6 | 4.5 | 5.4 | 6.3 | 7.2 | 8.1 |
| 60 mm Dish | 21 | 2.1 | 4.2 | 6.3 | 8.4 | 10.5 | 12.6 | 14.7 | 16.8 | 18.9 |
| 100 mm Dish | 55 | 5.5 | 11 | 16.5 | 22 | 27.5 | 33 | 38.5 | 44 | 49.5 |
| 150 mm Dish | 152 | 15.2 | 30.4 | 45.6 | 60.8 | 76 | 91.2 | 106.4 | 121.6 | 136.8 |
| T25 Flask | 25 | 2.5 | 5 | 7.5 | 10 | 12.5 | 15 | 17.5 | 20 | 22.5 |
| T75 Flask | 75 | 7.5 | 15 | 22.5 | 30 | 37.5 | 45 | 52.5 | 60 | 67.5 |
| T150 Flask | 150 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 |

Grey-shaded boxes represent suggested medium heights for use with cell lines that have low to moderate OCR.

References:

[1] W.H. Koppenol, J. Butler, Energetics of interconversion reactions of oxyradicals, Advances in Free Radical Biology & Medicine. (1985).

[2] B.A. Wagner, S. Venkataraman, G.R. Buettner, Free Radical Biology & Medicine, Free Radical Biology & Medicine. 51 (2011) 700–712. doi:10.1016/j.freeradbiomed.2011.05.024.