

Surface Areas of Cell Culture Vessels

The following are the surface areas of various tissue culture dishes or plates and their relative size to a 35 mm dish:

| Dish Diameter | Actual Area | Calculated Area | Relative to 35 mm Dish |
|---------------|--------------------|----------------------|------------------------|
| 35 mm | 10 cm ² | 9.6 cm ² | 1 |
| 60 mm | 20 cm ² | 28 cm ² | 2 |
| 100 mm | 60 cm ² | 78.5 cm ² | 6 |

Actual Area: These measurements were determined from actual measurements of common tissue culture vessels and the areas were rounded off.

Calculated Area: These values were calculated using the name of the culture vessel as the diameter.

Relative to 35 mm dish: This was calculated based on the actual area.

Area of a circle: The formula for calculating the area of a circle is: Area = (pi)(r²) where pi = 3.1416

Growth areas and yields of cultured cells* in various culture vessels :

| Cell culture vessel | Growth area** (actual) in cm ² | No. of cells*** |
|-------------------------|---|-----------------------|
| Multiwell plates | | |
| 96 | 0.3 | 4-5 X 10 ⁴ |
| 48 | 0.7 | 1.3 X 10 ⁵ |
| 24 | 2 | 2.5 X 10 ⁵ |
| 12 | 4 | 5.0 X 10 ⁵ |
| 6 | 10 | 1.2 X 10 ⁶ |
| Dishes | | |
| 35 mm | 10 | 1.2 X 10 ⁶ |
| 60 mm | 20 | 2.5 X 10 ⁶ |
| 100 mm | 60 | 7.5 X 10 ⁶ |
| 145-150 mm | 140 | 1.8 x 10 ⁷ |
| Flasks | | |
| T25 | 25 | 3.1 X 10 ⁶ |
| T75 | 75 | 9.4 X 10 ⁶ |
| T150 | 150 | 1.9 X 10 ⁷ |
| T162 | 162 | 2.0 X 10 ⁷ |
| T165 | 165 | 2.1 X 10 ⁷ |
| 40-50 ml | 25 | 3.1 X 10 ⁶ |
| 250-300 ml | 75 | 9.4 X 10 ⁶ |
| 650-750 ml | 162-175 | 2.0 X 10 ⁷ |
| 900 ml | 225 | 2.8 X 10 ⁷ |

*Such as NIH3T3, HeLa, CHO cells.

**Per well, can vary depending on the supplier. These values were determined from actual measurements of common tissue culture vessels and the values were rounded off.

***Assuming confluent growth. (~1.25 X 10⁵ cells/cm²).