

Droplet Volume

* At 70psi, using a 70um nozzle, what volume would be expected after sorting 1×10^6 cells

1) Calculate Drop Diameter

$$\begin{aligned}\text{Drop Diameter} &= 1.89 * \text{jet Stream diameter} \\ &= 1.89 * 65\mu\text{m} \\ &= 122.85\mu\text{m or } 122.85 \times 10^{-3} \text{ mm}\end{aligned}$$

2) Calculate Drop Volume

$$\begin{aligned}\text{Volume} &= \frac{4}{3} \pi r^3 ; r = 122.85 \times 10^{-3} \text{ mm} / 2 = 61.42 \times 10^{-3} \text{ mm} \\ &= 9.71 \times 10^{-4} \text{ mm}^3\end{aligned}$$

3) Calculate Total Volume collected in 1×10^6 cell sorted

$$\begin{aligned}\text{Total Volume} &= 9.71 \times 10^{-4} \text{ mm}^3 * 1.0 \times 10^6 \text{ cells (droplets)} \\ &= 970\mu\text{l}\end{aligned}$$