(Continued)

| Settling velocity range, m/h (1) | Average settling velocity, m/h (2) | Number of particles in influent, × 10⁻⁵ (3) | Fraction of particles removed (4) | Number of particles removed, × 10⁻⁵ (5) | Particles remaining in effluent, × 10⁻⁵ (6) |
|---|---|---|---|---|---|
| 1.0–1.5 | 1.25 | 90 | 0.625 | 56.25 | 33.75 |
| 1.5–2.0 | 1.75 | 110 | 0.875 | 96.0 | 14.0 |
| 2.0–2.5 | 2.25 | 100 | 1.000 | 100.0 | 0.0 |
| 2.5–3.0 | 2.75 | 70 | 1.000 | 70.0 | 0.0 |
| 3.0–3.5 | 3.25 | 30 | 1.000 | 30.0 | 0.0 |
| 3.5–4.0 | 3.75 | 20 | 1.000 | 20.0 | 0.0 |
| Total | | 500 | | 394.75 | 105.25 |

2. Calculate the average particle settling velocity for each velocity range by taking the average of the range limits, and enter the values in column (2). For the first velocity range, the average settling velocity is (0.0 + 0.5)/2 = 0.25 m/h.
3. Enter the number of influent particles for each velocity range in column (3).
4. Calculate the removal fraction for each velocity range by dividing the average settling velocity by the critical overflow velocity (2.0 m/h), and enter the result in column (4). For the first velocity range

$$\text{Fraction removed} = \frac{v_{n_i}}{v_c} = \frac{0.25}{2.0} = 0.125$$

Where the result is greater than 1.0, enter a value of 1.0, because all of the particles are removed.
5. Determine the number of particles removed by multiplying the number of influent particles by the percent removal [column (3) × column (4)]. Enter the values in column (5).
6. Calculate the particles remaining by subtracting the particles removed from the number of influent particles [column (3) − column (5)]. Enter the result in column (6).
7. Compute the removal efficiency by calculating the sum of particles removed and dividing the sum by the total number of particles in the influent.

$$\text{Total percent removed} = \frac{\sum_{i=1}^{n} \frac{v_{n_i}}{v_c}(n_i)}{\sum_{i=1}^{n} n_i} \times 100$$

$$= \frac{394.75 \times 10^{-5}}{500 \times 10^{-5}} \times 100 = 78.95\%$$