

How to Measure Daraclean Concentration by Burette Titration

1. Use the How to Determine Titration Factor instructions to determine the titration factor for your cleaning solution.
2. Thoroughly agitate in-use cleaning bath, then take about 100 mL of cleaning solution.
3. Use a graduated cylinder, pipette, or syringe to measure 10 mL of cleaning solution.
4. Transfer cleaning solution sample to an Erlenmeyer flask and add 40 mL DI water to make a 50 mL sample. (Increased volume will help see the endpoint; exact volume is not critical.)
5. Add 5 drops of phenolphthalein (or other indicator) to sample and swirl to mix. Solution will turn pink (or other color depending on the indicator used).
6. While swirling, slowly add 0.5N HCl (or other 0.5N titrant) drop-by-drop to the sample until the solution turns clear (or other end-point color depending on the indicator used). Record the mL of titrant to reach the end-point.
7. Calculate cleaning solution concentration by:

$$\text{mL of titrant to reach end-point} \times \text{Titrant normality} \times \text{Titration factor} = \% \text{ Cleaning solution}$$

How to Determine Titration Factor

1. Prepare 100 mL of fresh 5% cleaning solution and 10% cleaning solution.
2. Use a graduated cylinder, pipette, or syringe to measure 10 mL of each prepared cleaning solution (5% and 10%).
3. Transfer each cleaning solution sample to an Erlenmeyer flask and add 40 mL DI water to each flask to make two 50 mL samples. (Increased volume will help see the endpoint.)
4. Add 5 drops of phenolphthalein (or other indicator) to each sample (5% and 10%) and swirl to mix. Solution will turn pink (or other color depending on the indicator used).
5. While swirling, slowly add 0.5N HCl (or other 0.5N titrant) drop-by-drop to the 5% sample until the solution turns clear (or other end-point color depending on the indicator used). Count and record the number of drops or mL of titrant added to reach the end-point. Repeat for 10% sample.
6. Calculate factor by:

$$\frac{\% \text{ Cleaning solution}}{\text{Number of drops of titrant to reach end-point}} = \text{Titration factor}$$

$$\text{Example: } \frac{5\%}{8 \text{ drops}} = 0.625$$

if titrating with acid other than 0.5N:

$$\frac{\% \text{ Cleaning solution}}{\text{mL of titrant to reach end-point} \times \text{Titrant normality}} = \text{Titration factor}$$

The titration factors for 5% and 10% samples should calculate out to be the same.