Calculate Liquid Chemical Dose

From Calibration Cylinder Drawdown

Feed Solution Strength Using Liquid Chemical

Product specific gravity
From product data sheet. For hypochlorite use 1.00—SG included in product strength.

× **Product strength**
In decimal form. Example: for 23.5% use 0.235. For aluminum sulfate (alum), use dry alum equivalent, usually about 48.5% as aluminum sulfate or 0.485

× **Feed solution strength**
Gallons of product ÷ gallons of final solution. Use 1.00 if fed full strength.
Tip: 128 fl oz = 16 cups = 1 gal

× lb/gal **8.34**

Chemical Concentration (lb/gal)

OR

Feed Solution Strength Using Dry Chemical

Chemical Name:

lbs of product added to solution tank.

× **Product purity (% active ingredient)**
In decimal form.
For soda ash, lime use 1.00

÷ **Gallons of final solution**

Chemical Concentration (lb/gal)

Using This Poster

Start by entering the details of the dry or liquid chemical you're using (left). Next, using a timer and calibration cylinder, measure the chemical feed pump rate (right). Then fill in the numbers and use a calculator to find the current values for each of the colored boxes. Finally, plug those values into the equation at the bottom and calculate current dose.

Abbreviations

gpm:	gallons per minute
fl oz:	fluid ounces
lb:	pounds
L:	liters
mg:	milligrams
MG:	million gallons
MGD:	million gallons per day
mL:	milliliters (1/1000 liter)
SG:	specific gravity

Plant Flow (gpm)

× **Convert to MGD** **.00144**

1,440 min/day ÷ 1,000,000 = .00144

Plant Flow Rate (MGD)

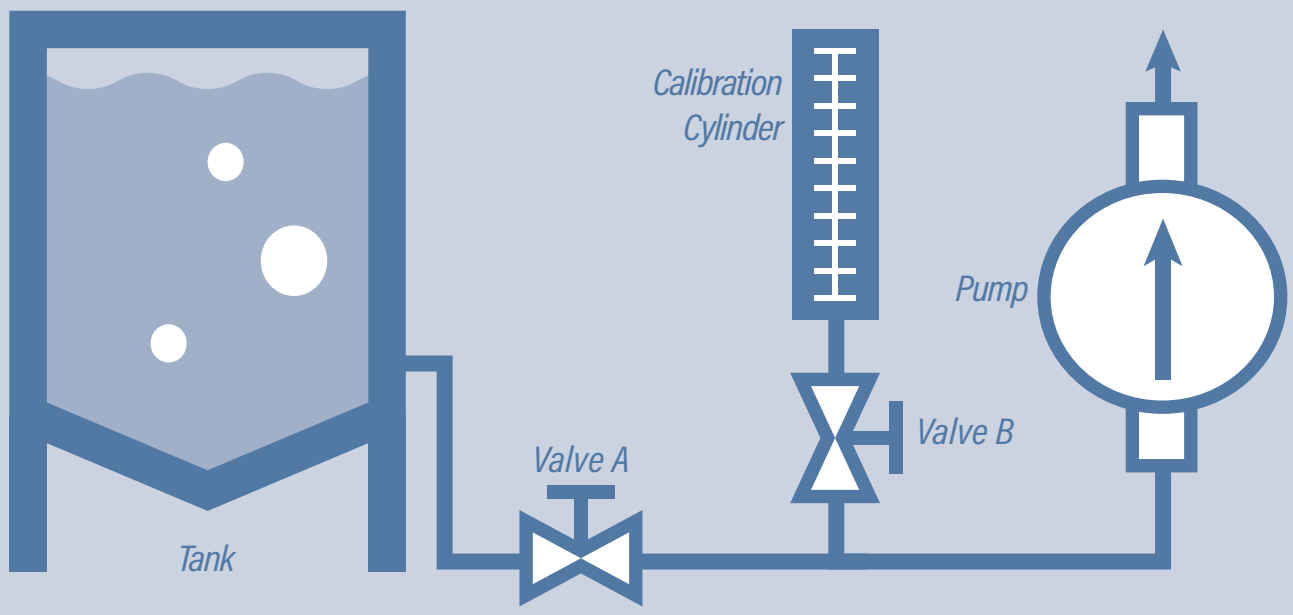
Drawdown from Calibration Cylinder (mL/min)

e.g., 50 mL drawdown ÷ 3.7 min = 13.5 mL/min

× **Convert to gal/day**

1,440 min/day ÷ 3,785 mL/gal ≈ .38

Chemical Feed Rate (gal/day)



$$\text{Dose}\left(\frac{\text{mg}}{\text{L}}\right) = \frac{\text{Chemical Feed Rate}\left(\frac{\text{gal}}{\text{day}}\right) \times \text{Chemical Concentration}\left(\frac{\text{lb}}{\text{gal}}\right)}{\text{Plant Flow Rate (MGD)} \times 8.34\ \text{(Conversion Factor)}}$$

Dose (mg/L) = (Chemical Feed Rate (gal/day) × Chemical Concentration (lb/gal)) / (Plant Flow Rate (MGD) × 8.34)

Updated on (date):_____

Conversion Factor: 8.34

Washington State Department of Health

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