

ASBC Approved Methods: Dilution and Calibration Standards

The "Dilution and Calibration Standards Calculator" was designed as a simple tool to be used for preparing standards or diluting samples to the desired concentrations. To use the calculator, input the compound density and purity along with the desired concentration and final volume noted in **BLUE**. From the initial concentration, dilution standards can be easily calculated by entering the final volume and desired concentration for each standard noted in BLUE. Addition amounts are calculated for you and displayed in **RED**. The calculator is set up for both liquids and solids. In addition, concentrations can be calculated in percents, parts per million (ppm), and parts per billion (ppb). See the links below for additional versions.

Calibration Standards in ppm and Dilution Preparation from Purchased Liquid Standard

Insert known values in **Blue**; **Red** values are calculated.

Primary or Stock Standard			
Final Volume Desired (mL)	Desired Initial Concentration (ppm)	Compound Standard Density g/mL (located on container label or MSDS)	Compound Standard % Purity (located on container label or MSDS)
			%

RESULT	Reset
	Volume of the Compound Standard (µL) to be Added to Primary or Stock Standard Final Volume

Calibration or Working Standards in ppm	
Standard Working Volume Desired (mL)	
Calibration or Working Standard Final Concentration in ppm	Volume (mL) of Primary or Stock Standard to be Added to Make Each Calibration or Working Standard

- Related Calculators:**
- [Final Concentration ppb Using Liquid](#)
 - [Final Concentration ppm Using Liquid](#)
 - [Final Concentration % Working Volume Using Liquid](#)
 - [Final Concentration ppb Using Solid](#)
 - [Final Concentration ppm Using Solid](#)

Note: To calculate the concentration for a fraction of the molecule, divide the molecular weight of the desired fraction by the molecular weight of the molecule. Multiply this fraction by the compound standard purity.

Example: Make a 500 ppm solution of iron (Fe) from iron chloride hexhydrate (FeCl₃·6(H₂O)), purity = 97%.

1) Fe fraction = 55.8 (g/mol)/270.3(g/mol) = 0.206
 2) The following would be used in the Compound Standard % Purity: 0.206 × 97% = 19.98%